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ABSTRACT

The hearing reported in this document focuses on mathematics and science education at the K-12 grade levels. The hearing includes the opening statements of Representative Sherwood Boehlert, Chairman, Committee on Science, U.S. House of Representatives and Representative Ralph Hall, Ranking Minority Member, Committee on Science, U.S. House of Representatives. Witnesses include Ms. Julia Anne Lewis, Elementary Mathematics Teacher, Academy School, Brattleboro, Vermont; Mr. Jonathan Brenner, Former Middle School Science Teacher, Eleanor Roosevelt Intermediate School 143, Washington Heights, New York; Ms. Felicity Messner Ross, Secondary Mathematics Teacher, Robert Poole Middle School, Baltimore, Maryland; Mr. Michael Stephen Lampert, Secondary Science Teacher, South Salem High School, Salem, Oregon and Representative Sheila Jackson Lee, Member, Committee on Science, U.S. House of Representatives. The appendix includes the opening statements by Congressman Ken Calvert 43rd District, California; Member, Committee on Science, U.S. House of Representatives; Representative Constance Morella, Member, Committee on Science, U.S. House of Representatives; and Congresswoman Zoe Lofgren, Member, Committee on Science, U.S. House of Representatives. (YDS)

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K-12TH GRADE MATH AND SCIENCE EDUCATION: THE VIEW FROM THE BLACKBOARD

ED 473 137

HEARING

BEFORE THE

COMMITTEE ON SCIENCE
HOUSE OF REPRESENTATIVES

ONE HUNDRED SEVENTH CONGRESS

FIRST SESSION

MARCH 7, 2001

Serial No. 107–3

Printed for the use of the Committee on Science

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K–12 GRADE MATH AND SCIENCE EDUCATION: THE VIEW FROM THE BLACKBOARD

WEDNESDAY, MARCH 7, 2001

HOUSE OF REPRESENTATIVES,
COMMITTEE ON SCIENCE,
Washington, DC.

The Committee met, pursuant to call, at 2:40 p.m., in Room 2318 of the Rayburn House Office Building, Hon. Sherwood L. Boehlert [Chairman of the Committee] presiding.

COMMITTEE ON SCIENCE

U.S. HOUSE OF REPRESENTATIVES

WASHINGTON, DC 20515

Hearing on

K–12TH GRADE MATH AND SCIENCE EDUCATION: THE VIEW FROM THE BLACKBOARD

Wednesday, March 7, 2001

WITNESS LIST

Ms. Julia Anne Lewis

Elementary Mathematics Teacher

Academy School

Brattleboro, VT

Mr. Jonathan Brenner

Former Middle School Science Teacher

Eleanor Roosevelt Intermediate School 143

Washington Heights, NY

Ms. Felicity Messner Ross

Secondary Mathematics Teacher

Robert Poole Middle School

Baltimore, MD

Mr. Michael Stephen Lampert

Secondary Science Teacher

South Salem High School

Salem, OR

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Should you need Committee materials in alternative formats, please contact the Committee as noted above.

Chairman BOEHLERT. Before we start the hearing, we have a small matter of business to bring before the Committee, namely the ratification of the member assignments to the individual Subcommittees. You have before you a list of those assignments. Without objection, by order of the individual Republican and Democratic caucuses of the House Committee of Science, these assignments are ratified by the Committee. Hearing no objection, so ordered.

It is my pleasure to welcome everyone to the second of our three opening hearings on the Science Committee's priorities for the 107th Congress. Last week we focused on energy. Next week, we will focus on the environment. But today, we will focus on what is, perhaps, the most fundamental and challenging issue of all, education.

Everything else we do depends on education because everything else we do depends on an informed and intellectually curious citizenry and a smart and flexible workforce. As H.G. Wells once wrote, "civilization becomes more and more a race between education and catastrophe." I could go on in this vein, but I think we all agree on the importance of education, and I want to get to the witnesses.

And we have with us today the best possible witnesses we could to learn about education, namely, teachers. And not just any teachers, teachers who have been recognized by their peers and by the President for their excellence.

In addition, we have past participants in Teach for America, top students who chose to take their expertise into the classroom. I had the privilege this morning of meeting with the Presidential awardees, and, by the way, copies of my remarks to them are at the press table. But let me say what an energizing and thrilling experience it was to talk to this group and to listen to them. It literally restores your faith in our future. I am pleased that the full Committee will now have the chance to hear from this inspiring and talented group.

We spend a lot of time in Washington talking about teachers, but too little time talking with them and, most importantly, listening to them. Today's hearing will start to correct that imbalance. I intend to make a Science Committee hearing with the Presidential awardees an annual event. So let me get to some logistic announcements and we will begin the hearing.

First, we will be strict today about the 5-minute time limits on witnesses and members to ensure that everyone gets a chance to speak. Second, after the testimony and the round of questions from all the members, we will give other awardees who are here with us today a chance to briefly add their thoughts to the record from the audience. With that, let me now turn to Mr. Hall, and then we will go to our distinguished Panel, who I am sure you will enjoy as much as I have already. And let me also add that the record is open for any opening statements additional colleagues wish to make. Mr. Hall.

[The prepared opening statement of Chairman Boehlert follows:]

PREPARED STATEMENT OF CONGRESSMAN SHERWOOD BOEHLERT

It's my pleasure to welcome everyone to the second of our three opening hearings on the Science Committee's priorities in the 107th Congress. Last week we focused

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With that, let me turn to Mr. Hall, and then we'll get to our distinguished panel, who I'm sure you will enjoy as much as I have already.

[The prepared opening statement of Ralph M. Hall follows:]

PREPARED STATEMENT OF THE HONORABLE RALPH M. HALL

Mr. Chairman, I am pleased to join you today in welcoming those who serve on the front lines of K–12 science and math education. I admire the skill and dedication of the outstanding teachers in attendance at this hearing. And, I especially want to congratulate those who have been selected to receive the prestigious Presidential Awards for Excellence in Mathematics and Science Teaching.

I would simply say to these teachers that I believe there is no more important job than the one you perform every day. Your efforts inspire the next generation of scientists and engineers who will make the discoveries and create the technological marvels of the future. But equally important you help prepare all children to function in an increasingly complex world, to be informed citizens, and to lead fulfilling lives.

Most workplaces are becoming increasingly technological. Your efforts help close the gulf between those with the training to thrive in this new work environment and those lacking the basic skills to qualify for the most rewarding and best paying jobs.

The nation must take advantage of the human resource potential of all our people if we are to succeed in the international economic competition of the 21st century. We need more teachers such as yourselves, who are able to engage and cultivate the interest of all children in science and math.

Over the past three years, the Science Committee has held a series of hearings on how to improve K–12 that has emerged from these hearings is that there is no silver bullet that will improve student learning in science and math. But what is also clear is the critical importance of having teachers who have achieved mastery of their subject matter and who have acquired effective pedagogical skills.

The basic public policy question we confront is how do we find, train and keep good science and math teachers.

Today we have the privilege of hearing from some of the best science and math teachers in the nation. We hope to learn what attracted them to teaching careers and what steps may lead to increasing their numbers. Any thoughts the panelists may have on an appropriate federal role in teacher recruitment would be welcome.

We are interested in what your experiences have been with federal professional development programs and the results of federal efforts to develop curricular materials. We would like to hear about the barriers teachers face in doing their jobs, and any recommendations on how these barriers may be overcome.

I am particularly interested in the views of our witnesses on how to improve the preparation of new teachers, what constitute effective professional development activities, and what factors influence teacher retention.

Finally, I invite the views of our witnesses on the kinds of federal actions and programs that have been effective in improving science and math education, and welcome any recommendations they may have for improvements.

I congratulate the Chairman for convening a hearing on this important subject, and once again congratulate the distinguished teachers appearing before the Committee. I appreciate their attendance, and I look forward to our discussion.

Mr. HALL. Mr. Chairman, thank you very much. I, of course, admire the skill and dedication of the outstanding teachers that are in attendance here and would—must be as humble as I know how to be by telling you that my only sister was a teacher, my only mother was a teacher, my only wife is a teacher, and I was a school superintendent at one time. So I am absolutely a wholly-owned subsidiary of yours and admirer of you because, all my life, I have known that the pay teachers get is that solace of sin, their product grow in confidence and knowledge and ability to cope. So I appreciate you very much.

Now, I have more intelligent things that my staff has written for me to say here, but I am going to leave—I am—at this time, turn to Lynn Woolsey and we are going to comply, Mr. Chairman, with the 5-minute rule—Lynn Woolsey, a leader in the field of education, from the State of California, for as little time as she can use.

Ms. WOOLSEY. Thank you, Mr. Chairman. And I will use a very small amount of time in honor of your staying within the time limits. I want to welcome you too. You are my heroes. I want you to know that one of my great concerns here in this Congress is that not enough girls are going into science, math, technology, and engineering fields. And because of that, I have legislation called Go Girl that you might hear about over the years that will be introduced again next week with over 20 original co-sponsors.

But that—by my intent is to encourage young girls from the fourth grade on to stay interested and motivated in the science and math fields so that by the time they get to college, they will be able to make the choices, if they want to, to go into these high-tech, these highly necessary fields, and earn a good living and contribute to our Nation the way we need to. Then we won't be having to have so many H1–B visas in this country. Thank you.

Chairman BOEHLERT. Thank you.

Mr. HALL. If I have some time left, Mr. Chairman—

Chairman BOEHLERT. You do have some time left, Mr. Hall.

Mr. HALL. Joe Baca, also a leader, and very interested in this thrust and in this hearing today, I would recognize him for 1 minute and 30 seconds, if that is already gone.

Mr. BACA. Thank you very much, Mr. Chair. I would like to congratulate all of the teachers, the awardees, right now. You really are an inspiration to many of our youth. You are truly the role models that have inspired their lives. You have touched their lives. You have made their lives a lot better. You have improved the quality of life. I commend you. I also agree that you are not getting paid enough. You get—you should get paid a lot more than what you are getting paid right now because you truly are the ones that are in contact with the future of America.

And I want to congratulate each and every one of you because you are doing something that many other individuals are not willing to do. You are not only sacrificing of your time and your energy to improve the quality of life. Thank you for touching the lives and improving the quality of life of American youth. Thank you.

Mr. HALL. And, Mr. Chairman, in closing, the basic public policy question we confront is how do we find, train, and keep good science and math teachers? How do we obtain them and how do we retain them? Thank you and God bless you.

Chairman BOEHLERT. Let the record show that the distinguished gentleman from Texas yields back the balance of his time. As we introduce the first Panel, I would like to accord a special privilege to one of the valued members of this Committee. The Chair now yields to Mr. Shays of Connecticut.

Mr. SHAYS. You know, I feel a little guilty doing this since I would be only introducing one of the four who are here, but let me just welcome Jonathan Brenner, who is a constituent and I have some nice things to say about him, but in deference to the others here, but to say that you are second among equals because your sister was my—an intern in my office last year and I am sure that she outclasses even you.

Chairman BOEHLERT. That is known as being politically correct. Our first Panel consists of Julia Anne Lewis, an Elementary Mathematics Teacher at the Academy School in Brattleboro, Vermont. Ms. Lewis is a 2000 winner of the Presidential Award for Excellence in Mathematics and Science Teaching. Welcome, Ms. Lewis.

Mr. Brenner, we have already had a brief introduction, but let me tell you a little bit more about him. He is a Former Middle School Science Teacher at the Eleanor Roosevelt Intermediate School 143 in Washington Heights, New York. Mr. Brenner is now a second-year medical student at the State University of New York, Downstate Medical Center. He taught for 3 years as a Teach for America corps member.

Next, is Felicity Messner Ross, a Secondary Mathematics Teacher at Robert Poole Middle School in Baltimore, Maryland. Ms. Ross is a 2000 Presidential Award winner who began teaching through the Teach for America Program.

And, finally, Michael Stephen Lampert, a Secondary Science Teacher at South Salem High School in Salem, Oregon, who is also a President Awardee for 2000. We welcome you, we appreciate you, and we want to hear from you.

Now, the Chair announced initially that we were going to be rigid with the 5-minute rule. The only flexibility I am going to permit, in addition to the generous treatment of the distinguished Ranking Member from Texas, is for the Panel. So don't feel constrained by the clock, but we would ask that you keep it around 5 minutes to give us the gist of your thinking and then we will get right at with the dialogue. Thank you very much. Ms. Lewis, you are up first.

STATEMENT OF JULIA ANNE LEWIS, ELEMENTARY MATHEMATICS TEACHER, ACADEMY SCHOOL, BRATTLEBORO, VERMONT

Ms. LEWIS. Good afternoon, Mr. Chairman, and Committee members. My name is Julia Lewis and I am a third grade teacher from the State of Vermont. It is a great honor to be here today to testify. I am currently in my 18th year as an educator. I was very fortunate to attend an excellent undergraduate school for teachers, Lesley College, in Cambridge. My leadership experiences at Lesley gave me the confidence to continue my leadership roles in the schools where I have been teaching and eventually at the state level.

I am currently working on my master's degree in mathematics and teacher leadership at the University of Vermont. I have worked with children from ages five to 14, every grade except for second, which I am still hoping to maybe fit in. I have worked also in special education. I have worked with educators as a teacher leader in my district and in schools all over Vermont.

Spending a year out of my classroom, under National Science Foundation funding, to provide staff development in math and science, helps me tie together a lot of parts of my career. I had a chance to go into many schools and classrooms and, boy, did I learn a lot. I wish more teachers had this great opportunity. Being part of developing state standards and assessments in the area of mathematics has been another highlight for me. Vermont is so small that I have been able to work with many of the inspiring leaders in education in Vermont.

All of these experiences have taught me about good teaching practices. During my experiences over the past 18 years, I have shaped my belief about what I think is essential in education. All children learn at their own developmental rate, and all children are capable of meeting the standards and becoming successful, life-long learners. Teachers can meet the needs of all children only with good training and with mentorship from colleagues and administrators and politicians.

The biggest influence on my teaching practices and leadership style is probably my inability to say no. I was raised by parents who valued giving to others over financial gain. My father was a teacher and a union activist and a therapist and my mother is a musician and an artist. Both of my parents taught me to believe that each of us has the ability to make change in the world in our own way. I am an optimist and an idealist, a dreamer, and a doer. Everything is possible. My principal has been known to call me Pollyanna, in a fond way. Having an outstanding principal makes a huge difference in my ability to do good work.

I say this while at the same time I have a brilliant student in my third grade class who reads at a mid-first grade level, and I have another student who reads at a ninth grade level. I have a student who attended private school and came to me this fall. This child went from being 2 years below grade level in math to being above grade level within 3 months. Between my special education teammate and myself, we figured out that he had never received any direct instruction in basic skills. His problem-solving skills are fabulous. Other students I have need more work in problem-solving

and application and need confidence-building to take risks and try strategies.

I am often requested by parents of learning-disabled children and I am equally requested by parents for their gifted children. Knowing how to reach every child means working closely with families, extra reading, networking with colleagues, and perseverance. Sharing the joys and challenges of teaching with my colleagues enhances my life as an educator almost as much as working with the children.

I feel that this wonderful award is based on my ability to teach children at many levels using a standards-based program and standards-based assessment. I am very enthusiastic about what I do and I have celebrated good results.

I have had wonderful experiences that have been made possible by federal funding. My year out of the classroom to do staff development and my current graduate program and, of course, this incredible Presidential Award, have all touched my life in profound ways that came as a result of this funding. Federal funding is essential in education and I know my students can only benefit from the programs that have been made possible for me to participate in.

There is an area that I feel could use more in the way of funding and political support. We need better ways to assess children. Traditional fill-in-the-bubble tests do not reflect our current standards. While it is important to get feedback about our students each year, we can't compromise good assessment that measures our standards and gives us a true picture of our students' capabilities. And I want to say that one more time. Of course, I can't find my place. While it is important to get feedback about our students each year, we can't compromise good assessment that measures our standards and gives us a true picture of our children's capabilities.

Valid assessments give students a chance to perform in the same ways they are taught by good teachers. Teachers who recognize the learning styles of their students and give performance-based assessment as a regular part of their teaching, are best able to create and administer tests that can be given each year. Teachers need to be part of the test development from the ground up so they will feel ownership in the process and embrace the idea of yearly testing. This requires more time and more money, but I feel that our children are worth it. Thank you so much for your time today.

[The prepared statement of Ms. Lewis follows:]

PREPARED STATEMENT OF JULIA ANNE LEWIS

Good Morning Mr. Chairman and Committee Members. My name is Julia Lewis and I am a third grade teacher from the State of Vermont. It is an honor to be here today to testify.

BACKGROUND

I am currently in my eighteenth year as an educator. I was very fortunate to attend an excellent undergraduate school for teachers—Lesley College in Cambridge, Massachusetts. My leadership experiences at Lesley gave me the confidence to continue my leadership roles in the schools where I have been teaching and eventually at the State level. I am currently working on my master's degree in Mathematics and Teacher Leadership at the University of Vermont. I have worked with children from ages five to fourteen in the mainstream classroom as well as in special edu-

cation. I have also worked with educators as a teacher leader in my district and in schools all over Vermont.

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All of these experiences have taught me about good teaching practices. During my experiences over the past eighteen years I have shaped my beliefs about what I think is essential in education: all children learn at their own developmental rate and all children are capable of meeting the standards and becoming successful, life-long learners. Teachers can meet the needs of all children only with good training and with mentorship from colleagues and administrators.

BECOMING AN AWARD WINNING TEACHER

The biggest influence on my teaching practices and leadership style is probably my inability to say "no!" I was raised by parents who valued giving to others over financial gain. My father was a teacher, a union activist and a therapist. My mother is a musician and an artist. Both of my parents taught me to believe that each of us has the ability to make change in the world in our own way. I am an optimist and an idealist, a dreamer and a doer. Everything is possible. My principal has been known to call me "Pollyanna" in fond way. Having an outstanding principal makes a huge difference in my ability to do good work.

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HOW CAN FEDERAL FUNDING CONTINUE TO SUPPORT MATHEMATICS AND SCIENCE EDUCATION?

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Thank you so much for your time today!

[The information follows:]

BIOGRAPHY FOR JULIA ANNE LEWIS

Julia Lewis teaches third grade at the Academy School in Brattleboro, Vermont. She received her B.S. in Education at Lesley College, in Cambridge, Massachusetts. In addition to her teaching duties, she is currently a member of the Windham Southeast Standards and Curriculum Design team, where she and her team work to adopt Vermont standards and develop standard-based curricula and assessment. Lewis also serves as a Math Olympiad coach, and is math consultant for the Summer Math Institutes for grades K–5.

Lewis has been teaching for 17 years in a variety of schools and at a variety of grade levels. With the encouragement of her fellow educators, she decided to get involved in her profession at the state level. Since 1992, she has served as network leader, benchmark writer, and school consultant with the Vermont Mathematics Portfolio Assessment.

Chairman BOEHLERT. Thank you very much. And, perhaps, in good conscience, you can say that your appearance before this Committee allows you to fill in the void in your resume. As I recall, you said you have taught everything but the second grade.

Ms. LEWIS. Oh. Okay.

Chairman BOEHLERT. Mr. Brenner.

STATEMENT OF JONATHAN BRENNER, FORMER MIDDLE SCHOOL SCIENCE TEACHER, ELEANOR ROOSEVELT INTERMEDIATE SCHOOL 143, WASHINGTON HEIGHTS, NEW YORK

Mr. BRENNER. Good afternoon, Chairman Boehlert, Ranking Member Hall, Congressman Weiner, Congressman Shays, and members of the Committee. It is an honor to have the opportunity to speak before you today.

Teach for America is the national corps of outstanding and diverse recent college graduates of all academic majors who commit 2 years to teaching under-resourced urban or rural public schools. Teach for America was started in 1989 with the goal that one day all children in this Nation will have the opportunity to attain an excellent education. Since 1990, Teach for America has sent over 6,000 teachers into 15 different regions throughout the country.

As a pre-medical student at Northwestern University, I knew that I wanted to be a doctor. But during my senior year, I decided that medical school would wait. A friend pointed me in the direction of Teach for America and, compelled by their mission statement, I decided to apply.

I spent 3 years teaching sixth, seventh, and eighth grade science in Intermediate School 143 in the Washington Heights neighborhood of New York City. The impact occurred in Room 321 over the course of six 40-minute periods, 5 days a week—quality teaching, the hardest work I have ever done.

In September of 1999, I enrolled in the State University of New York, Downstate Medical Center, to begin my medical training. I am still a teacher. In the fall of this year, I approached a professor at Downstate with the idea to create a content-driven, professional development opportunity for teachers in Brooklyn using our medical school as the home base. Along with several other professors and a team of students, we are now well on our way to creating a biotechnology mini-camp for Brooklyn High School science teachers.

For my testimony today, I was asked to address the single most important step that the Federal Government should take to improve K through 12 math and science and education. The answer

is necessarily broad and will require and investment of time and money to find a way to place quality people in our Nation's math and science classes and keep them there.

I have a friend who is an administrator at a struggling school in Manhattan. At 150-percent capacity, her 1,700 students are educated in two shifts every day. My friend is the only certified science teacher in the entire building. This is a crisis. In an e-mail correspondence I received the other day, a New York educator commented that without capable replacements for the tens of thousands of experienced teachers now looking toward the end of their classroom careers, it won't matter what gets put down on paper documents or online sites, and it won't matter what national standards exist, because there won't be anyone able to lead our students.

The approach to putting quality individuals in math and science classrooms must be multi-faceted and should include, one, a systemic review of the quality of education programs in this country. There are programs in New York City that award master's degrees to students, as if they were lollipops, for good effort. Two, financial incentives offered to educators willing to teach in under-served areas. There should be enough money to make teaching science in shortage areas an economically feasible considerable for our brightest students.

Three, a serious effort to provide science teachers with the appropriate tools with which to teach science. This includes smaller class size and appropriate science equipment. Four, fostering the development of partnerships between universities and local schools. And, lastly, encouraging professionals to consider teaching as a second career.

We must create public schools and make teachers and students excited about math and science. No one wants to be a part of a losing team. There are public schools in New York City in poor and under-served communities that are thriving. These are schools where the administration is strong, the teachers well-trained, and the students excel. You will not attract talented individuals into a profession whose training programs are fodder for the funny pages, where starting salaries are comparable to those of first-year prison guards at Sing-Sing, and whose publicity consists largely of public ridicule.

We will not attract talented individuals into a school building where students' book bags are passed through X-ray scanners, the desks are broken and too few in number, and the staff development days consist of grading the latest writing exams.

In the words of Ray Owens, a 1990 charter Teach for America corps member, the question that we should ask ourselves should not be, how can I make this work? The question must be, how can I afford not to make this work? Thank you.

[The prepared statement of Mr. Brenner follows:]

PREPARED STATEMENT OF JONATHAN BRENNER

TEACH FOR AMERICA: HISTORY

Teach for America is the national corps of outstanding and diverse recent college graduates of all academic majors who commit two years to teach in under-resourced urban or rural public schools. Teach For America is a selective program, accepting approximately 25% of all applicants. Now in it's 11th year, Teach For America was started in 1989 when Wendy Kopp, then a senior at Princeton University, decided

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that something needed to be done about the inequities that existed in public education. Using her senior thesis as a springboard, Wendy and a group of recent college graduates began a grass roots effort to recruit seniors at universities and colleges throughout the United States to join the exciting new initiative. Their goal was ambitious and their mission statement, powerful: One day, all children in this nation will have the opportunity to attain an excellent education. In a few months, Teach For America had 2,500 applicants and in the fall of 1990, 500 of them were sent out to teach. Since then, Teach For America has sent over 6,000 teachers into 15 different regions throughout the country. These are: Atlanta, Baltimore, the Bay Area, Chicago, Greater New Orleans, Houston, Los Angeles, Mississippi Delta, New Jersey, New York City, North Carolina, the Rio Grande Valley, Phoenix, Rural Louisiana and Baton Rouge and Washington DC.

TEACH FOR AMERICA: CORPS MEMBER TRAINING AND PLACEMENT

Once selected for Teach For America and assigned to a region, corps members begin their training. This consists of approximately 12 hours of independent observation in public school classrooms and an intensive 5-week training program in Houston, Texas. At this summer institute, corps members teach summer school in the mornings and early afternoon and attend lectures, workshops and discussion sessions in the late afternoon and evening. Shortly after the completion of the institute, corps members report to their assigned region for orientation and to begin their 2-year commitment.

As the vast majority of corps members are not education majors, the communities where they are placed have alternate routes into teaching that do not require previous education coursework. As a result, districts hire corps members to teach K–12 students, paying them beginning teacher salaries and assigning corps members to classrooms just as they would any certified teacher. In essence, Teach For America screens, selects, trains and supports. Corps members are not volunteers. Once in the classroom, they are first year teachers working for the school district of their respective region. Depending on the region, corps members are required to complete coursework toward full certification in their subject area.

TEACH FOR AMERICA: AFTER THE TWO YEARS

After completing their two-year commitment, approximately one half of corps members teach for at least a third year. Others enter a diversity of fields, including medicine, business, law, public policy and journalism. Currently 60% of Teach For America alumni are still involved in education—40% as full time teachers and 20% in other capacities.

MY EXPERIENCE: INTERMEDIATE SCHOOL 143

As a pre-medical student at Northwestern University, I knew that I wanted to be a doctor. But during my senior year, I decided that medical school would wait. I wanted to spend a few years engaged in an experience that would challenge me on every possible front. A friend pointed me in the direction of Teach For America and, compelled by their mission statement, I decided to apply. It was the best decision of my life. I spent three years teaching 6th, 7th, and 8th grade science at Intermediate School 143 in the Washington Heights neighborhood of New York City. I remember walking into my classroom the day before school in September of 1996, staring at 32 empty desks, trying to fathom the fact that the science education of 120 11-year-olds would be my charge in less than 24 hours; what an awesome responsibility. Over the next three years I helped to write grants to build a model science classroom, developed curriculum for my district, took a group of students to Washington, DC for a science exchange with students in Arlington, Virginia, and brought in students from the Columbia College of Physicians and Surgeons to mentor my after school science club. In the end, those accomplishments are frills. The impact occurred in room 321, over the course of six 40 minutes periods, 5 days a week. Quality teaching. The hardest work I have ever done. In September of 1999 I enrolled in the State University of New York, Downstate Medical Center to begin my medical training. I am still a teacher. In the fall of this year I approached a professor at Downstate with the idea to create a content-driven professional development opportunity for teachers in Brooklyn using our medical school as the home base. Along with several other professors and a team of students, we are now well on our way to creating a biotechnology mini-camp for Brooklyn high school science teachers. Similar programs already exist at the medical schools of Boston University, Cornell and Columbia. I recently had lunch with a friend who is thinking about starting a science academy at her Manhattan middle school. She and I spoke about

establishing a partnership between her academy and Downstate—a mini-medical school for educators. There are so many exciting possibilities.

TEACH FOR AMERICA'S ROLE: BRINGING PEOPLE INTO THE FOLD AND EXPANDING THE DISCOURSE

Teach For America is not a perfect program. In an ideal world, it would not exist. There are inherent and significant problems in placing teachers in a position for only two years. I have spoken with veteran educators who say that they are frustrated with the constant turnover and have a difficult time investing themselves in the training of teachers that may be gone in a few years. Despite these failings, I believe that Teach For America has an important impact on education in this country by accomplishing chiefly two goals:

1. Bringing quality people into the fold of education that might not have otherwise considered a career in teaching: Ray Chin, a biology teacher in California, was recognized by Governor Gray Davis for creating an AP Biology class and coaching 20 of 26 students to a score of 3 or better. Nellie Chilungu was Baltimore City's 1999 Teacher of the Year. Michael Feinberg and David Levin started the KIPP (Knowledge Is Power Program) Academies, which are the highest ranked middle schools in Houston and the Bronx. Chris Barbic founded YES College Preparatory, the highest performing charter high school in the state of Texas.
2. Creating a force of leaders who bring the discourse of educational inequity into their chosen professions: Bill Norbert won election to Maine's state legislature on an education platform. Lee McGoldrick was selected to serve in the 2000–2001 Class of White House Fellows. Mark Levine founded a credit union to meet the financial needs of residents of Washington Heights in New York City.

Federal support for programs like Teach For America and new initiatives with similar goals must be a component of education reform in this country.

THE FEDERAL GOVERNMENT'S ROLE: PLACING QUALITY EDUCATORS IN THIS NATION'S MATH AND SCIENCE CLASSROOMS

For my testimony today, I was asked to address the single most important step that the federal government should take to improve K–12 math and science education. The answer is necessarily broad and will require an investment of time and money: Find a way to place quality people in our nation's math and science classrooms and keep them there.

I have a friend who is an administrator in a struggling school in Manhattan. She is a Teach For America alumnus and one of the most talented educators I know. At 150% capacity, her school educates 1,700 students in two shifts every day. Since September, four teaching positions have remained vacant, filled on a rotating basis with substitutes. My friend is the only certified science teacher in the entire building. The only bodies willing to stick around are staunch idealists, first year teachers, veterans biding their time until retirement or educators who left other schools amid controversy. This is a crisis. In an e-mail correspondence I received the other day, a New York educator commented that "without capable replacements for the tens of thousands of experienced teachers now looking toward the end of their classroom careers, it won't matter what gets put down in paper documents or on-line sites, and it won't matter what National Standards exist, because there won't be anyone able to lead our students." The approach to putting quality individuals in math and science classrooms must be multi-faceted and should include:

1. A systemic review of the quality of education programs in this country, similar to the AMA's review of medical school graduation requirements at the turn of the century. There are programs in New York City that award masters degrees to students as if they were lollipops for "good effort". I have many friends enrolled in what are considered the top education programs in the country who respond with a laugh when I inquire about the rigor of their program. "Thank God I'm not paying for it" one recently remarked about her masters training. This review must include an assessment of programs for both teachers and administrators. A Chinese general commented about the Russian Army in the second world war that they were like a bunch of lions led by asses. If the educational leader of a school is without vision and proper training, the teachers, the students and the school will not succeed.
2. Financial incentives offered to educators willing to teach in under-served areas. There should be enough money to make teaching science in shortage

areas an economically feasible consideration for our brightest students. These include: increased federal dollars for licensed teachers in the shortage areas of math and science, housing allowances to encourage prospective teachers to live in the neighborhood where they teach, tax breaks and increased levels of loan forgiveness, tuition reimbursement to encourage teachers to take science and math courses at local universities and to pursue advanced degrees.

3. A serious effort to provide science teachers with the appropriate tools with which to teach science. This includes smaller class size and appropriate science equipment. The laboratory is where the process of science or the act of doing science meets the content of science. Schools need water faucets that function, lab tables that won't catch fire, and microscopes that work. A quality educator is not going to be attracted to a school where the prospect of doing a laboratory experiment means clearing the cobwebs from the science supply room.
4. Fostering the development of partnerships between universities and local schools. I have already mentioned the new endeavor at Downstate and the existing opportunities at several other East coast medical schools. These relationships need active support from the government. Quality teachers are starving for quality professional development.
5. Encouraging professionals to consider teaching as a second career. I attended a lecture last year on the genetics of heart disease, given by a famous physician and basic research scientist. He mentioned that he was considering leaving academia to pursue full time work for a small biotech firm and if the firm folded, he wanted to teach high school science. Recently, Wendy Kopp and Teach For America founded The New Teacher Project, a not-for-profit consulting organization with this expressed purpose. The New Teacher Project works with school districts to design a recruit and support program aimed at bringing professionals into teaching as a second career. The New York Teaching Fellows Program is one product of this collaborative effort.

We must create public schools that make teachers and students excited about math and science. No one wants to be a part of a losing team. There are public schools in New York City, in poor and under-served communities that are thriving. These are schools where the administration is strong, the teachers well trained and the students excel. You will not attract talented individuals into a profession whose training programs are fodder for the funny pages, where starting salaries are comparable to those of first-year prison guards at Sing-Sing and whose publicity consists largely of public ridicule. You will not attract talented individuals into a school building where students' book bags are passed through x-ray scanners, the desks are broken and too few in number, and the staff development days consist of grading the latest writing exams. When I tell people that I am a medical student, I am bright, I am well respected, I am elite. When I told people that I was a teacher, I was a martyr, I was wasting my talents, I was wasting my time. This Congress cannot wait for another space race and another Sputnik before it does everything in its power to make quality education from quality educators this nation's top priority.

CONCLUSION: HOW CAN WE AFFORD NOT TO MAKE THIS WORK?

The data is clear. The stories are real. Until the staggering inequities that exist in this nation's classrooms are corrected, we lose children every day. James McBride in "The Color of Water", writes of growing up in the Red Hook Housing Projects in Brooklyn, New York in the 1950s and 1960s, one of 12 children, the son of a white mother and a black father. Today, these 12 siblings are medical doctors, high school teachers and university professors. Ruth McBride Jordan made sure her children understood that education was king. "Educate yourself, or you'll be a nobody", "What good is money if your mind is empty?" In the words of James McBride, "We thrived on thought, books, music and art, which she fed to us instead of food." Collectively, this Congress must be Mrs. McBride Jordan. You must establish and foster a national ethic that declares, without hesitation, that the education of our children is second to nothing. Some argue that we should be worried about protecting our country from a foreign missile strike. While this may be a valid concern, I contend that we should be more concerned about the fact that most of my sixth grade students did not know how to use a 12-inch ruler. This committee has, time and again, held hearings about math and science education. After reading through some of the transcripts of these hearings, it is clear to me that many thoughtful and encouraging discussions have taken place. The discussion, rightly so, must now turn to next steps. Unpopular decisions must be made, long-term solutions must be pur-

sued and money must be spent. I can assure you, from first hand experience, abundant rewards await. The same overcrowded school about which I spoke earlier in my testimony started a chess team a few years ago. The teachers and students trained together after school for a year and, after a few tournaments, traveled to Tennessee to compete in the national championships. They won their age division. In the words of Ray Owens, a 1990 charter Teach For America corps member, "the question that we should ask ourselves should not be 'how can I make this work?' The question must be, 'how can I afford not to make this work?'"

[The information follows:]

BIOGRAPHY FOR JONATHAN BRENNER

Jonathan Brenner was born in New York City and raised in Stamford, CT. He attended Northwestern University and graduated with a B.A. in the History of Medicine in June, 1996. After graduating, Jonathan joined Teach For America and taught 6th, 7th and 8th grade science for three years at Intermediate School 143 in the Washington Heights neighborhood of New York City. He is currently a second year medical student at the State University of New York, Downstate Medical Center in Brooklyn where, in addition to pursuing his M.D. degree, he is helping to develop a biotechnology mini-camp for Brooklyn science teachers.

Chairman BOEHLERT. Thank you very much. Ms. Ross.

Ms. MORELLA. Mr. Chairman—

Chairman BOEHLERT. Yes.

Ms. MORELLA. Mr.—we are over here. Right. Good.

Chairman BOEHLERT. Ms. Morella.

Ms. MORELLA. Not only do I want to congratulate the winners, but I just want to point out that Ms. Ross is a constituent of mine, point of personal privilege. Thank you very much.

Chairman BOEHLERT. Ms. Ross, I want you to know you are fortunate. You have an outstanding representative and you now have the microphone.

STATEMENT OF FELICITY MESSNER ROSS, SECONDARY MATHEMATICS TEACHER, ROBERT POOLE MIDDLE SCHOOL, BALTIMORE, MARYLAND

Ms. ROSS. Thank you. Good afternoon, Mr. Chairman, Congresswoman Morella, and members of the Committee. My name is Felicity Messner Ross, and I teach sixth, seventh, and eight grade mathematics at Robert Poole Middle School in Baltimore. I am honored to be here as a representative of the Presidential Awardees in Excellence in Mathematics and Science Teaching.

I graduated from the University of Michigan in 1994 with degrees in mathematics and psychology, and I hold a master's degree in clinical psychology. Throughout my undergraduate years, I planned to be an actuary at an insurance company. In my senior year of college, I was struck by the opportunity to teach in an inner city environment. Through a program called Teach for America, which places recent college graduates from all academic backgrounds in under-resourced urban and rural school districts, I began teaching middle school math in the fall of 1994 in Baltimore, Maryland.

My students face innumerable daily challenges, including extreme poverty, drug abuse in the community, high mobility rates, teen pregnancy, violence, and crime. Booker T. Washington Middle School was supported by Title I federal funding with more than 95 percent of the students receiving free lunch.

After 2 years, I began teaching in a program called the Ingenuity Project, which is a math, science, and technology program, in four Baltimore public schools that is augmented by foundation funding. The goal of the Ingenuity Project is to give bright city students the classroom advantages that wealthy or county and private schools offer their populations with the expectation that ingenuity students will graduate from high school, attend college, and ultimately be prepared to become leaders in their chosen professions.

There are many benefits to being a student in this program, which include having access to a plethora of materials, such as technology and manipulatives, having teachers who are committed to continuing their professional development, enrichment programs, after school and during the summer, and being among socially and academically similar peers.

Because many inner city teachers feel overwhelmed with the demands of crowded classrooms, students with behavioral and psychological problems, and the lack of a strong support system, sadly, these exceptional students often fall through the cracks. To me, being an exemplary teacher means being flexible, knowing your students, constantly reflecting on what and how you are teaching, and dedicating your life to being a life-long learner. I believe that it is this philosophy that has led me to this prestigious award which I have been so honored to receive.

Early in my career, I noticed that my students had a tremendous lack of experiences outside of their community. Despite being just 45 minutes away, many of my students have never been to this, our Nation's capital. A colleague and I decided to make an effort to do something to expose our students to more life experiences. We created a program that exposed a group of African-American girls to educational opportunities with particular emphasis on opportunities for women in math and sciences and on the arts. Through grant-writing efforts, we have been able to raise over $40,000 in funding from the foundation community. We continue, 6 years later, to work with the same group of girls in our program.

In addition to intense mentoring in educational programs in Baltimore, we have held annual educational excursions outside the city, including 18 days in Alaska, where they studied glaciers and wildlife, and a week in Montreal, where we were immersed in an entirely different culture.

In addition to my work with students in and outside of the classroom, I have begun to utilize my expertise to train others. Currently, I am working with Johns Hopkins University in their ProMat Program as a faculty associate, teaching education courses to graduate students who are currently in their first year of teaching in Baltimore.

The majority of my students are a part of the Project Site Support Program, a program that is federally funded by a teacher quality enhancement grant, the purpose of which is to increase the number of excellent teachers in urban communities. Project Site Support takes a holistic approach to training bright individuals through quality course work, supervision, and mentoring. This program pays for the course work and, in exchange, the teacher candidates commit 5 years to teaching in the designated urban community. I have also written and presented several multi-discipli-

nary technology-infused lessons for a variety of Maryland Public Television teacher training institutes.

External funding sources, like the NSF grant that I will receive, placed into the hands of able educators, catalyzes increased performance in the classroom. Low-income students come to the classroom with a series of deficits. By and large, they are denied the learning opportunities at home and in the surrounding world enjoyed by their wealthier counterparts. The grant I will receive from NSF will allow me to identify and take advantage of learning opportunities inside and outside of the classroom. It represents an important step toward placing my ambitious and deserving students on an even playing field. These funds will also enable me to continue my own professional growth, as well as to provide opportunities for my colleagues to develop professionally as well.

Given the extraordinary challenges in our society brought on my advancements in science and technology, it is more important than ever that all of our children have a solid foundation in math and science. If our children do not have strong skills in math, science, and technology, they will be in an intractable position of disadvantage. Having a grasp of these subject matters is increasingly a prerequisite for even entry-level jobs. In order to give our children the tools they need to excel in math and science, it is imperative that we improve the human capital base in the teaching ranks.

I believe that we must endeavor to recruit the best possible teachers to our classrooms. Federal support, both through funding and through extensive public discourse, to this end, would be very important. I came to teaching through Teach for America, a program that is federally supported by Americorps funding. And I believe this, and other alternative certification programs like it, should be supported. We must draw the best and brightest math and science minds to the classroom from people at the beginning and at the end of their professional careers.

Given the demands in what is increasingly a knowledge-based economy, the Federal Government should support those efforts that create opportunities for mentoring and professional development in math and the sciences. I believe that the Federal Government should also support incentives to the private sector to bring their resources and intellectual capital to our Nation's classrooms. Thank you for graciously offering me the opportunity to share my views with you on these subjects.

[The prepared statement of Ms. Ross follows:]

PREPARED STATEMENT OF FELICITY MESSNER ROSS

Good afternoon, Mr. Chairman, Congresswoman Morella, and members of the Committee. My name is Felicity Messner Ross and I teach sixth, seventh, and eighth grade mathematics at Robert Poole Middle School in Baltimore, Maryland. I am honored to be here as a representative of the Presidential Awardees for Excellence in Mathematics and Science Teaching.

I graduated from the University of Michigan in 1994 with degrees in mathematics and psychology and I hold a Masters degree in clinical psychology. Throughout my undergraduate years, I planned to be an actuary at an insurance company. In my senior year of college I was struck by the opportunity to teach in an inner-city environment. Through a program called Teach For America, which places recent college graduates from all academic backgrounds, in under-resourced urban and rural school districts, I began teaching middle school math in the fall of 1994 in Baltimore, Maryland. My students faced innumerable daily challenges including extreme poverty, drug abuse in the community, high mobility rates, teen pregnancy, violence

and crime. Booker T. Washington Middle School was supported by Title I federal funding with more than 95 percent of the students receiving free lunch.

After two years, I began teaching in a program called the Ingenuity Project which is a math, science and technology program in four Baltimore public schools that is augmented by foundation funding. The goal of the Ingenuity Project is to give bright city students the classroom advantages that wealthier county and private schools offer their populations with the expectation that Ingenuity students will graduate from high school, attend college, and ultimately be prepared to become leaders in their chosen professions. There are many benefits to being a student in this program, which include having access to a plethora of materials, such as technology and manipulatives, having teachers who are committed to continuing their professional development, offering enrichment programs after school and during the summer, and being among socially and academically similar peers. Because many inner-city teachers feel overwhelmed with the demands of crowded classrooms, students with behavioral and psychological problems, and the lack of a strong support system, sadly, these exceptional students often fall through the cracks.

To me, being an exemplary teacher means being flexible, knowing your students, constantly reflecting on what and how you are teaching and dedicating your life to being a lifelong learner. I believe that it is this philosophy that has lead me to this prestigious award which I have been so honored to receive.

Early in my career I noticed that my students had a tremendous lack of experiences outside of their community. Despite being just 45 minutes away, many of my students had never been to this, our nation's capital. A colleague and I decided to make an effort to do something to expose our students to more life experiences. We created a program that exposed a group of African American girls to educational opportunities with particular emphasis on opportunities for women in math and sciences and on the arts. Through grant-writing efforts, we have been able to raise over $40,000 in funding from the foundation community. We continue, six years later, to work with the same group of girls in our program. In addition to intense mentoring and educational programs in Baltimore we have held annual educational excursions outside the city including 18 days in Alaska where they studied glaciers and wildlife and a week in Montreal where we were immersed in an entirely different culture.

In addition to my work with students in and outside of school, I have begun to utilize my expertise to train others. Currently, I am working with Johns Hopkins University in their ProMat program as a faculty associate teaching education courses to graduate students who are currently in their first year of teaching in Baltimore. The majority of my students are a part of the Project Site Support Program, a program is federally funded by a teacher quality enhancement grant, the purpose of which is to increase the number of excellent teachers in urban communities. Project Site Support takes a holistic approach to training bright individuals through quality coursework, supervision and mentoring. This program pays for the coursework and in exchange the teacher candidates commit five years to teaching in the designated urban community. This program I have also written and presented several multi-disciplinary, technology-infused lessons for a variety of Maryland Public Television teacher training institutes.

External funding sources, like the NSF grant that I will receive, placed into the hands of able educators, catalyzes increased performance in the classroom. Low-income students come to the classroom with a series of deficits. By and large, they are denied the learning opportunities at home and in the surrounding world enjoyed by their wealthier counterparts. The grant I will receive from NSF will allow me to identify and take advantage of learning opportunities inside and outside of the classroom. It represents an important step toward placing my ambitious and deserving students on an even playing field. These funds will also enable me to continue my own professional growth as well as to provide opportunities for my colleagues to develop professionally.

Given the extraordinary challenges in our society brought on by advancements in science and technology, it is more important than ever that all of our children have a solid foundation in learning in math and science. If our children do not have strong skills in math, science and technology, they will be in an intractable position of disadvantage. Having a grasp of these subject matters is increasingly a prerequisite for even entry-level jobs. In order to give our children the tools they need to excel in math and science it is imperative that we improve the human capital base in the teaching ranks. I believe that we must endeavor to recruit the best possible teachers to our classrooms. Federal support, both through funding and through extensive public discourse, to this end would be very important. I came to teaching through Teach For America, a program that is federally supported by Americorps funding, and I believe this and other alternative certification programs like it should

be supported. We must draw the best and brightest math and science minds to the classroom from people at the beginning and end of their professional careers.

Given the demands in what is increasingly a knowledge-based economy, the Federal government should support those efforts that create opportunities for mentoring and professional development in math and the sciences. I believe that the federal government should also support incentives to the private sector to bring their resources and intellectual capital to our nation's classrooms.

Thank you for graciously offering me the opportunity to share with you my views on these subjects.

[The information follows:]

BIOGRAPHY FOR FELICITY MESSNER ROSS

Felicity Messner Ross is a sixth, seventh, and eighth grade mathematics teacher for the Ingenuity Project at Robert Poole Middle School. The Ingenuity Project is a rigorous mathematics, science and technology program located in three Baltimore City middle schools and one Baltimore City high school. Ross implements the Singapore mathematics curriculum with her sixth and seventh graders. She has also created and implemented a problem-solving course for her seventh grade students to be taken in addition to pre-algebra.

Ross spends a significant amount of time in teacher training efforts and is a part-time graduate instructor at Johns Hopkins University. She teaches a math methods course as well as an advanced topics course to graduate students who are concurrently completing their first year of teaching in Baltimore. She is currently a master teacher for the Maryland Public Television (MPT) BioHealth Link Teacher Training Conference. Ross will design and present interdisciplinary technology-infused lessons to teachers from all over the state this summer at a four-day institute held by MPT in conjunction with Johns Hopkins University School of Public Health. Ross has served as a Master Teacher for past MPT conferences as well, such as the Maryland Public Television National Teacher Training Institute and EnviroHealth Link. Recently, Ross served on the EnviroMysteries II Video Planning/Advisory Team. She has also conducted professional development workshops for Teach for America conferences as well as at her school.

Ross is particularly interested in gender equity in mathematics education. In 1997, she was awarded an Eleanor Roosevelt Teacher Fellowship from the American Association of University Women. This fellowship was awarded to Felicity based on the math, science and technology program she designed for a group of at-risk African-American girls. In the summer of 1999, she was among 12 educators who were selected to participate in the Genderwise Working Conference to learn about issues surrounding girls and mathematics at Mount Holyoke.

Ross completed her undergraduate studies at the University of Michigan earning a Bachelor of Science degree in mathematics and psychology. She earned her Masters Degree of Clinical Psychology at Loyola College in Baltimore in the summer of 2000.

Chairman BOEHLERT. And thank you for sharing those views. Mr. Lampert.

STATEMENT OF MICHAEL STEPHEN LAMPERT, SECONDARY SCIENCE TEACHER, SOUTH SALEM HIGH SCHOOL, SALEM, OREGON

Mr. LAMPERT. Good afternoon, Mr. Chairman, and members of the Committee. My name is Michael Lampert and I teach microelectronics and physics at South Salem High School, which is located just a few blocks from our capital in the beautiful State of Oregon. It is a pleasure for me to be here and represent over 200 Presidential Awardees who are being honored this week in Washington.

I want to describe to this Committee how I got here, what I plan to do with my Presidential grant, and also to say a few things about science education as viewed from the front lines of teaching.

I began my career saying these very words: "I never want to be a high school physics teacher." Then my first college physics pro-

fessor, Dr. Schultz, inspired me to think again. He would always spice up his delivery with drama and show clips of Piaget's psychology experiments on age and learning. Still, I was not yet convinced this is what I wanted to do. I graduated with honors from the University of California at Berkeley in physics and I immediately pursued a Ph.D. degree in experimental atomic physics.

I discovered my talent for teaching during my time there as a teaching assistant. Although I really wanted to be a college professor, I decided to give high school teaching a goal. It was there that I met Pat Canan, a former Presidential Awardee, who mentored me and showed me the excitement of teaching. I learned everything I know about teaching from him.

I spent my first 5 years teaching students we refer to as the smoking crowd, those under-appreciated students. I can remember the countless fist fights, the confiscation of drugs, the violent and blatant racism, the counseling of rape victims, the drunkenness at eight in the morning. And most especially, I remember Tara Whittaker, who, at age 16, died of a brain tumor. I learned a lot about life in a very short time, and I realized then that I had chosen the right profession, for I could directly affect so many people's lives.

After proving myself as a teacher with these kids, I moved on to teaching higher level science. It was after Christa McAuliffe died in the Challenger that I made it my personal goal to become the Presidential Awardee for Oregon. I saw how she was an inspiration for so many students and I wanted to do the same for mine. I wrote countless grant proposals and soon had over $100,000 of equipment for my classroom. I tried innovative projects like solar physics cars or studying the physics and safety of airbags, or the physics of sports through digitizing student-produced videos. It was these unique approaches to experimental physics that finally allowed me to win the Presidential Award. The process took over 10 years and I am very happy to be here.

My plans now are to use my grant monies to improve my microelectronics program by establishing a robotics curriculum. This will provide my students with great opportunities for learning because it combines computer programming with sophisticated electronics. In my experience, kids are fascinated with robotics, especially after the success of the TV show Battlebots. I also will use this money to improve teaching through computerized presentation of lessons and interactive learning through individual student remotes. Additionally, I plan a new unit on Plasma Physics, our Nation's future energy source.

What should the Federal Government do to help secondary science? First, keep funding the Presidential Awards program. It has brought prestige to my profession. Second, vigorously fund the National Science Bowl program. It is in dire need of an overhaul to make it exciting for students, which will make it inspirational for kids to learn science. Third, continue the support of science teacher professional development through the Eisenhower Program, which is supporting my trip here today. Finally, it is time to move past standards and testing and actually get down to the business of teaching by supporting programs that intervene directly with classrooms and the students. Do this by providing scholarships and science competitions in partnership with corporations.

Examples of outstanding programs are the Toyota Tapestry awards, the Intel Science Talent Search Competition, the Verizon Gift awards, the Shell science teacher awards, the Toshiba ExploraVision awards, the Bayer/NSF Community awards, and many others.

In my career, I have been inspired by role models. I believe that to change the state of science education in America, we need to inspire kids to succeed in science through role models. Kids need hand-on learning, friendly competition, and inspirational teachers. I was shocked when a student told me that until he gone through my class, he had learned more about science through watching the Discovery Channel than by learning in the classroom. This needs to change, and it can change.

Finally, on behalf of all the Presidential Awardees, I would like to express our thanks for honoring us here today. Thank you.

[The prepared statement of Mr. Lampert follows:]

PREPARED STATEMENT OF MICHAEL LAMPERT

Good afternoon, Mr. Chairman, Congressman Wu, and members of the Committee. My name is Michael Lampert. I teach micro-electronics and physics at South Salem High School, which is located just a few blocks from our capital in the beautiful state of Oregon. It is a pleasure for me to be here and represent more than two hundred Presidential Awardees who are being honored this week in Washington.

I want to describe to this committee how I got here, what I plan to do with my Presidential grant and also to say a few things about science education as viewed from the "front lines" of teaching.

I began my career saying these very words: "I never want to be a high school physics teacher." Then, my first college physics professor, Dr. Schwartz, inspired me to think again. He would always spice up his delivery with drama and show clips of Piaget's psychology experiments on age and learning. Still, I was not yet convinced this is what I wanted to do. I graduated with Honors from University of California at Berkeley in physics and immediately pursued a Ph.D. in experimental Atomic Physics. I discovered my talent for teaching during my time there as a teaching assistant. Although I really wanted to be a college professor, I decided to give high school teaching a go. It was there that I met Pat Canan, a former Presidential Awardee, who mentored me and showed me the excitement of teaching. I learned everything I know about teaching from him. I spent my first five years teaching students we refer to as "the smoking crowd," the under appreciated students. I can remember the countless fist fights, the confiscation of drugs, the violent and blatant racism, the counseling of rape victims, the drunkenness at eight in the morning, and most especially, I remember Tara Whittaker, who at age sixteen died of a brain tumor. I learned a lot about life in a very short time and I realized then that I had chosen the right profession, for I could directly affect so many people's lives.

After proving myself as a teacher with these kids, I moved on to teaching higher level science. It was after Christa McAuliffe died in the Challenger that I made it my personal goal to become the Presidential Awardee for Oregon. I saw how she was an inspiration for so many students and I wanted to do the same for mine. I wrote countless grant proposals and soon had over a hundred thousand dollars of equipment for my classroom. I tried innovative projects like solar physics cars, or studying the physics and safety of airbags, or the physics of sports through digitizing student produced videos. It was these unique approaches to experimental physics that finally allowed me to win the Presidential Award. The process took over ten years and I am happy to be here.

My plans now are to use my grant monies to improve my microelectronics program by establishing a robotics curriculum. This will provide my students with great opportunities for learning because it combines computer programming with sophisticated electronics. In my experience, kids are fascinated with robotics, especially after the success of the TV show *Battlebots*. I also will use this money to improve my teaching through computerized presentation of lessons and interactive learning through individual student remotes. Additionally, I plan a new unit on Plasma Physics, our future energy source.

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Finally, on behalf of all the Presidential Awardees I would like to express our thanks for honoring us here today. Thank you.

[The information follows:]

BIOGRAPHY FOR MICHAEL LAMPERT

Michael Lampert was born in Toronto, Canada in 1959. He has lived most of his life in the USA, in Maryland, California and Oregon. He graduated with Honors from the University of California at Berkeley in Physics and has Masters degrees in Physics and in Education from Oregon State University.

Lampert has worked as a planetarium lecturer, a college teaching assistant, and for the last ten years, a high school science teacher in Salem, Oregon. He has an extensive background in experimental atomic physics, microelectronics, and computer interfacing. He has been awarded the *Northern Life Unsung Heroes Award,* the *Tandy Technology Scholar Award,* and the *Presidential Award for Excellence in Mathematics and Science Teaching.* His students have been national winners in the *Toshiba Exploravision Science Contest,* the *Duracell Invention Challenge,* and they have represented Oregon in the *United States Academic Decathlon.* He is married and has three beautiful children.

Chairman BOEHLERT. Mr. Lampert, we, too, are glad you chose teaching as a profession. I am going to deviate and do something unusual. I am going to ask my colleagues up here to join me in giving you all, all the teachers, a standing ovation. You are the best. Wow. That is inspirational.

Let me ask—you all touched on it somewhat, and particularly, Mr. Brenner, you were very specific in your recommendations—we all know that the best intentions in the world aren't good enough. We need money in education. So I think it pleases all of us to see the direction the proposed budget is going, and up, in terms of spending for education. But that is easy and we know that. You know it doesn't come—we know it doesn't come cheap.

What else can we do—would you recommend that we do, that is really doable, to support our effort to attract more of you into the teaching profession? Well, we will go the Panel first because we will give others off the Panel an opportunity after in sort of the open forum. You have all mentioned mentoring. That is critically important and I am not quite sure how we can go about encouraging more people to be responsible and take on that important assignment. But is there anyone—do you have any thoughts, other than

Mr. BRENNER. I can—

Chairman BOEHLERT. Yeah. Mr. Brenner.

Mr. BRENNER. —speak. Just by way of going back to the story that I told in my testimony, this friend of mine is a phenomenal, phenomenal educator, and she is in a school that is drowning. And we were having a conversation the other day over Dim Sum in Chinatown in New York. And I asked her, what is keeping you there? And she said, you know what? Nothing. I am thinking about leaving.

You can't attract people to a working environment where all the teachers can do is keep their heads above water. The class sizes need to decrease. You need to have infrastructure with which to teach science—science labs. You need to have a competent administration, because, without that, it doesn't matter how good the teachers are, the school is not going to work. And the list can really go on, and I have outlined it in—

Chairman BOEHLERT. Mr. Brenner, you know, we can do something about the resources for lab facilities, for example. That is something we can pinpoint.

Mr. BRENNER. Right.

Chairman BOEHLERT. I don't know how we can deal with competent administrators—your plea for competent administrators.

Mr. BRENNER. Well, there needs to be a review of training programs and I am not sure if that is something that the Federal Government can do. I know that the American Medical Association, at the turn of the century, conducted an extensive review of medical education in this country and the result was an extensive revamp of requirements for graduates. And the medical profession soared in prestige after that and the quality of physicians coming out of medical school soared as well.

So if the Federal Government can fund some sort of initiative that looks at education programs. Because I wasn't kidding when I said that some of these programs award master's degrees, as if they are lollipops, for good effort. I mean, you can sleep through some of these classes in New York City and get a—graduate with a 4.0 and a master's degree, and that shouldn't be. And I have friends who are in the best education programs in the country who say the same thing.

Chairman BOEHLERT. Anyone else have any thought? Ms. Ross?

Ms. ROSS. Yes. I would just mention, kind of piggybacking on that, being open to alternative certification programs, if you are trying to attract the best and the brightest, many of the top institutions do not even have education programs. So there are many, many very bright people who do want to teach and they end up going—either they can't teach because they aren't certified, or they go on to teach in private schools where that is allowed in some cases. So being open to alternative certification programs and seeing—like I definitely was not teacher-trained and I feel like I am good example of someone who is successful through that—through an alternative program.

Chairman BOEHLERT. Yeah. The—and I can't agree more with you on the basic premise. But that is a state function, certification of teachers. The type of thing that we have to be concerned about is what we can do, our role, in addition to just, you know, writing a check, so to speak, or voting aye for more funding. But all of us here, this Committee particularly, has been very supportive of the

National Science Foundation programs, teacher training institute for the summer, that type of thing.

In the short time I have left of my questions before going to my colleagues, let me ask you this—all of you—well, the three of the four are going back into the—in the classroom on a full-time basis, and, doctor, I will call for an appointment now, I know how difficult it is, long-term. But I am wondering what the best use of your special skills would be. Is it to have other teachers come in and see you in action in the classroom or is it to take you out of the classroom and visit other classrooms and you assume the role of mentor. Anybody have any thoughts on that? Ms. Lewis.

Ms. LEWIS. I have had a lot of experience, actually, leaving my classroom, and it is a hardship for my students and it is somewhat of a hardship for me, as well. But I feel like that has been really effective. And Vermont has a great system for mentoring in place. Part of the master's program that I am in is leadership, and they expect that the people that graduate from this program, which is really rigorous and full of hard math especially, will go out and work with other teachers at the elementary level, helping them increase their math content. And I think that that model is really wonderful.

Chairman BOEHLERT. Well, knowing all of you and the obvious dedication and commitment you have, I can't conceive of you—any of you saying no to an opportunity to be a mentor or to go out and tell others. Do your respective administrations usually—well, you don't know yet, because you are just awardees now—but would you expect them to be very cooperative in this endeavor?

Ms. LEWIS. Absolutely. My administrator has been very, very cooperative.

Chairman BOEHLERT. How about you, Ms. Ross?

Ms. ROSS. Yes. Mine has also been very supportive of me doing professional opportunities myself to improve my own professional development, but also she has been very supportive of letting me out of the building.

Chairman BOEHLERT. Anything to add, Mr. Lampert?

Mr. LAMPERT. I don't know if my administrator would be so supportive. Funds are hard to come by and so if there were federal funds to let me go—I kind of wanted to back up for a second about these education programs and the mentoring. The time, I think, that teachers learn the best on how to teach is when they are actually in the classroom. And the education programs, these lollipop programs and such, it seems a little bit the cart before the horse. It is better to get into the classroom and start teaching than to go back and to learn more about the details of teaching. I am not sure where I am going with this, but—

Chairman BOEHLERT. But you are a proven success story, no doubt about it.

Mr. LAMPERT. Yeah.

Chairman BOEHLERT. And so my—I guess my basic question was, should we bring you out of the classroom and to go into other classrooms and help them? And, if we do, I can understand—

Mr. LAMPERT. Well—

Chairman BOEHLERT. —the problem this creates for your administration because then they have got a void to fill in—

Mr. LAMPERT. They have a void. And right now, I have a substitute teacher teaching and, frankly, I had to make a lesson that would be okay for a substitute. You know, and so—

Chairman BOEHLERT. That is another story—another story for another day. Even in the great State of New York—

Mr. LAMPERT. And I have to say—

Chairman BOEHLERT. —a substitute teacher's pay is just embarrassing.

Mr. LAMPERT. Well, I have—you know, I have made a dedication to teaching and so it is really difficult for me to be away from my kids, because I—actually, mentoring is not one of my goals. My goals—I felt I could make a bigger difference by being there with the kids, being on the actual front lines. That is where I wanted to be. So—

Chairman BOEHLERT. And we are glad you are there. Thank you. My—look at, you are going to experience this today. Every single one of us would like to take an hour, just of our own, to talk with you and have this dialogue, but that is not fair. So I go to Mr. Hall.

Mr. HALL. Mr. Chairman, thank you. Ms. Jackson Lee did not get here in time to make her opening statement, and she has a very important speech to make in about 15 minutes, I think. So I would yield to her, my time, at this time. Yield me back as much as the 5 minutes as you need to. Is that all right, Mr. Chairman?

Chairman BOEHLERT. Or if you—sure, it is all right. If you would like, you can use your time as you wish. If you would like to submit the opening statement for the record, the record is open for that purpose. We are just anxious to have individual members have the dialogue with our special Panel, rather than any lengthy speeches. But I—it is up to you. You have got the time.

Ms. JACKSON LEE. Thank you very much, Mr. Chairman, and, Ranking Member. And I will submit most of my statement into the record. I did want to acknowledge that because I was so excited about this particular hearing, I quizzed some of my teachers in the Houston area about their creative ways of teaching math and science, and would simply like to note that teachers from the DeBakey High School, Patricia Winkler; Larsons Elementary School, Helen Weiser, from Houston, Jay Ernest Wilkens, among many others, are teachers that I can cite in our area that have, one, gotten results, and, two, love to teach math and science.

With that, I will only ask one question, and I thank the yielding member for yielding to me, because I am so impressed with your creativity and your results, though I hear some of the starkness that you speak of as well. Help me—we are now focusing overall on education, and you have been hearing the message from Washington, testing, testing, accountability, accountability. I have even spoken to some students in my district who has said I spent the tenth year of my education studying for tests. And when I say tests, the standardized tests.

Help me understand how we can impact the accountability, but what do you feel that testing a student, only as it relates to teaching a subject like math and science—math or science—what does that do to your teaching capacity and how do we answer both concerns? I would love to have students just running toward math and science because they love it because it is a—they are wonderful

subjects. And with that, I yield back. And I would like all of you to give me a quick answer, if I don't take up all of Mr. Hall's time. Thank you.

[The prepared statement of Sheila Jackson Lee follows:]

PREPARED STATEMENT OF SHEILA JACKSON LEE

Chairman Boehlert, and Ranking Member Hall, thank you for this important opportunity to discuss our nation's children and their future as it relates to sound math and science education.

As the founder and co-chair of the Congressional Children's Caucus, I am extremely interested in this subject. We have learned through the numerous hearings the Science Committee has held on reform of K–12 science and math education; there is no single factor that is the key to better student performance. But it has also emerged from a broad range of testimony that a necessary, if not sufficient, condition for improved student performance is teachers with both good content knowledge and pedagogical skills. These past hearings have pointed out the looming problems in attracting sufficient numbers of new teachers, deficiencies in the training of new teachers and in professional development activities available for in-service teachers, and difficulties in retaining science and math teachers.

The House Science Committee has an important role in identifying our nation's requirements for future science majors graduating from schools of higher learning. Today, we know that there is a shortfall in key employment areas, which require trained mathematicians and scientists. If this nation is not able to prepare sufficient numbers of young people to fill the job openings, which require a mastery of mathematics and science, then we will lose the ownership of our future. Therefore, we cannot afford to lose one mind that could have been a great math mind or researcher to other pursuits.

To teach is a wonderful vocation; to teach well is the ultimate expression of love for our children. I thank you for your efforts on the behalf of Houston's youth.

The Houston Independent School District (HISD) is the largest public school system in Texas and the seventh largest in the United States. Our schools are dedicated to giving every student the best possible education through an intensive core curriculum and specialized, challenging instructional and career programs. HISD is working hard to become Houstonians' K–12 school system of choice, constantly improving and refining instruction and management to make them as effective, productive, and economical as possible.

HISD has become a leader in restructuring public education, most recently by establishing unprecedented new standards that every student must meet to earn promotion from one grade to the next. HISD's balanced approach to the teaching of reading has garnered national attention, and Project CLEAR, a comprehensive initiative to align curriculum with fundamental knowledge and skills expected of all students, is contributing to a steady rise in scholastic performance. HISD is bringing its school buildings up to high standards and building 10 new schools through Rebuild 2002, a $678-million capital improvement program. In addition, HISD opened two new state-of-the-art high schools that were built thanks to the creation of tax increment zones that allow HISD to derive revenue from increases in property value through redevelopment. HISD is demonstrating the utmost managerial accountability through contractual arrangements with specialists in budgeting, purchasing, payroll, personnel management, food services, and maintenance that enable the school district to devote more resources directly to the classroom.

My Houston, Texas is home to the Houston Independent School District, which provides education to more than 209,000 students. This district serves a very diverse group of young people, 52% are Hispanic, 34% are African American, 10% are white, nearly 3% are Asian/Pacific Islander, and just under one percent are Native American. The district manages 295 campuses and educational programs: twenty-nine are high schools, 34 are middle schools, 186 are elementary schools, 19 are charter schools, 9 are community-based alternative programs and 18 are combined-level or other programs.

The heart of HISD are its teachers, principals and administrators, librarians, nurses and psychologist, support staff, parents, and board members. For there efforts I along with thousands of parents in and around the City of Houston are extremely grateful. They have performed outstandingly and deserve special recognition; unfortunately our society does not offer the greatest financial rewards to our most valued citizens—teachers. However, the President's Award for Excellence in Elementary Mathematics and Science Teaching has become an excellent symbol of professional accomplishment as an educator.

I would like to commend and thank the children, parents, teachers, and administrators of the school districts that serve my constituents for their hard work and dedication to excellence in education. In particular I would like to extend thanks to Ms. Cora L. Cedeno, who was awarded Southwestern Bell's "Parents as School Partners in Math" grant for the 2000–2001 school year.

The DeBakey High School for Health Professions has an outstanding math and science program. All of the students are required to use Graphing Calculators in most math classes and must complete five years of Math, which includes Algebra I, Geometry, Algebra II, and Pre-Calculus & Calculus.

I offer special recognition to Patricia Winkler, a DeBakey High School math teacher, who was recognized as the Certified Public Accountant Teacher of the Year in May 2000. The school was also recognized in the Beta State Competition in February 2001–Math area as the First Place State Award and Second Place Community Award. This approach is so popular that at Askew Elementary there are eight organizations that incorporate math excellence and rewards for the students who excel. Some of those programs are S.T.A.R. math for 3rd & 4th Graders, Math Blaster, The Cruncher, and Math Shop Deluxe.

At Larson's Elementary School the students are involved in math competitions among themselves: the popular groups are Harcourt-Brace Math Carnival Countdown, and Harcout-Brace Math Number Heroes, and Larson's Middle School Math.

This year Ms. Helen Wieser was the State Level Presidential Awardee Finalist for Excellence in Mathematics Teaching. In 1997, I had the pleasure of congratulating Mrs. Margaret A. Hammer, a teacher at the Parker Intermediate School, located in the City of Houston, when she was chosen to receive this presidential award. I would like to offer heartfelt thanks and congratulations to all of this year's recipients of the President's Award for Excellence in Elementary Mathematics and Science Teaching.

I believe that any formula for improving Math and Science performance of K–12 students has be a holistic approach: strongly emphasizing their mind, body, emotional development.

There are a few examples in the area of math and scientific developments that point to the need to not only provide for good education's, but we must be willing and able to further the knowledge of those who show promise in those areas. The first example of a brilliant mind in mathematics that was stifled was Georg Cantor, who between 1879 and 1884 published a series of six papers that outlined what we call today *Set Theory*. This mathematical concept is widely accepted today, but during Cantor's life it was ridiculed by his peers and largely dismissed because many mathematicians did not under stand Cantor's theory.

Set Theory has allowed for groups of people, objects or concepts to be categorized based on one or more characteristics that they share. For example all of the men on this committee could make up one set, while all of the women could make up another set. This simple concept took decades to be accepted and cost Cantor his professional standing and mental health due to the harsh criticism he had to endure based on his theory of sets.

J. Ernest Wilkins, Jr. is another example of how genius can flourish in the right environment. Dr. Wilkins first attracted nationwide attention when he received his college degree at age 17 and his doctorate from the University of Chicago at 19. He received his Bachelor of Science in 1941, Master of Science in 1941, and Ph.D. in Mathematics in 1942. He received a Bachelor of Mechanical Engineering in 1942 from New York University, followed by a Master of Mechanical Engineering in 1960. He served as an Instructor of Mathematics at the Tuskegee Institute, a Historically Black College and University, from 1943 to 1944.

My last example of math genius is Albert Einstein who was born on March 14, 1879, to middle-class Jewish parents in Ulm, Germany. He disliked school because of the mindless drilling that prevailed. He much preferred to study at home, especially geometry and books on popular science. Initially upon his first encounter with education, it was thought that he was unable to learn mathematics, however, today we know that was not the case.

A child's mind must be prepared to learn once they arrive at school, but the teaching institution must be prepared to teach each child in a manner that will maximize their learning ability. For this reason, I have re-introduced H.R. 73, the Early Detection of Dyslexia in Children Act of 2001 and H.R. 75, the "Give a Kid a Chance Omnibus Mental Health Services Act of 2001." Both of these bills are directed at the issue of being prepared to teach children, based on their individual needs. We know that no two people are alike, so why does our educational system take a cookie cutter approach to the development of our nation's most precious assets, the minds of our children.

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The Early Detection of Dyslexia in Children Act 2001, would direct the Secretary of Education to conduct a study and submit a report to Congress on effective methods for identifying and treating children with dyslexia in kindergarten through third grade.

H.R. 75, the "Give a Kid a Chance Omnibus Mental Health Services Act of 2001," amends the Public Health Services Act with respect to mental health services for children, adolescents and their families.

At least one in five children and adolescents has a diagnosable mental, emotional, or behavioral problem that, can lead to school failure, alcohol or other drug use, violence, or suicide. Mental disorders that begin early in life have a strong effect on future educational success. Adolescent emotional problems many increase the likelihood of risk-taking behaviors, including gun violence, drug abuse, reckless driving, and early sexual activity.

I will not recount the tragedy that occurred earlier this week or the nearly dozen other ones that have occurred on elementary, junior high, and high school campuses over the last few years, which have resulted in the needless loss of young lives. I will state that as responsible legislators we must leave the rhetoric of getting touch on youth offenders to the pundits and get to the real heart of this issue. We must focus on early detection and treatment of children with mental health problems.

The other area that I feel has been too little discussed is the need to provide good balanced meals for all children in public schools. It is a well known practice of teachers and principles in Texas Schools that they provide personal funds to make sure children have a good breakfast prior to taking the TASS test, to ensure that their kids have the best possible chance of doing well on that very important examination.

I would like to thank the teachers who are testifying before our Committee today, I know that each of you can probably provide a wealth of information on children and their needs in math and science education. I look forward to your testimony today, and would like to thank you for participating in this hearing.

Thank you.

Mr. HALL. Thank you. And, Mr. Chairman, I don't know how much time I have left. I will start real quickly, Ms. Lewis, with you. You mentioned that you received support from NSF for a professional development opportunity. Just to—and this may be the beginning and we will work all the way through. But I am interested in knowing how you got started. What was the name of the NSF Program and how did you find out about it? And what kinds of things did you do under the program?

Ms. LEWIS. The way I found out about the program was through my work with the Department of Education. And—

Mr. HALL. Did you just stumble on to it or were you—

Ms. LEWIS. Well, I was recruited by this teacher when I—

Mr. HALL. Yeah.

Ms. LEWIS. —taught fourth grade, about 12 or 13 years ago. And she said, hey, you should come and work for the Department of Ed with me because we are scoring this student work and you get paid for it and it is a great opportunity. And I said, great, I will go. And I went and I had an aptitude for scoring student work, students who had been assessed with a performance-based assessment that needed a human body to score their work. And I got asked back again a couple of more times, and, before I knew it, I worked part-time for the Department of Education in Vermont.

And that is how I found out about a program called VISMAT, which is the Vermont Institute of Science, Math, and Technology, which was an NSF-funded program. And they took me out of my classroom for a year, paid about ⅓ of my salary through the NSF, and then the other third, the district paid, and I went all over the State of Vermont providing in-service to other teachers.

And that is kind of how it happened. It was one of the best experiences I ever had because I got to go into hundreds of classrooms

and teach children that were not children I taught every day. I would just bring my bag of tricks and my—whatever the teachers were looking for help in with me to the classroom, and show up and meet all of these children, and it was incredible. It was probably the biggest turning point of my career I could ever imagine, besides this wonderful award.

Mr. HALL. Well, I thank you.

Ms. JACKSON LEE. Mr. Chairman—

Mr. HALL. If it not too much, do I have time to enlarge on that?

Ms. JACKSON LEE. Mr. Chairman, as you—

Chairman BOEHLERT. Yes.

Ms. JACKSON LEE. Mr. Hall—

Mr. HALL. Yes.

Ms. JACKSON LEE. —here I am over here. If you go ahead, when I asked the question, a person did not get a chance to answer. After you finish, if the Chairman would indulge for Ms. Ross just to answer the one question that I asked.

Chairman BOEHLERT. Sure.

Mr. HALL. Go ahead.

Ms. ROSS. As far as accountability and assessments and—I teach—

Ms. JACKSON LEE. And testing. Yeah.

Ms. ROSS. And testing—I teach mathematics and a whole lot of time is spent doing—you know, my students' valuable time is spent with testing. I think that we need to be very careful to make sure that the tests are really measuring what they are supposed to measure and that the kids aren't tested to death so that they don't feel angry about the math classroom.

I teach in a special program called the Ingenuity Project, which does have its own set of testing as well, and I personally am held accountable for that, not my school, not the city, not the state. I, myself. If my—if the program sees that my students don't perform, then I am going to answer for that. I think that accountability is very important, but I also think it is very important not to spend so much time testing, because it really can turn kids off.

Ms. JACKSON LEE. Thank you.

Chairman BOEHLERT. Thank you. Mr. Lampert, you will be pleased to be introduced to Dr. Vernon Ehlers, who is a fellow of the American Physics Association, a physicist. Dr. Ehlers.

Mr. EHLERS. Thank you very much. And I can't tell you what a delight it is to see such highly qualified teachers in front of us. I taught college and university physics for 22 years, but much of that time was spent working with teachers in elementary school classrooms. And it just warms my heart to hear the stories you are telling, although some of them are heartbreaking too, Mr. Brenner.

And I don't—unfortunately, the Federal Government—maybe fortunately—our role is really limited. We have neither constitutional nor statutory responsibility for the K–12 school system. And so we are in a position of wanting to help, but it has to be—it is very difficult to help, other than sending money. And when we send money, it is usually with strings attached to it, and some of the strings are good; some are not. But I really appreciate you being here and congratulate you on your awards.

Just a quick comment on the lollipops. I just—I will give you my outside perspective on that. I think that is really a subversive scheme to make it easy to raise teachers' salaries because many institutions recognize that teachers' salaries are not adequate, so they make it easy to get master's degrees, so the salaries go up. But that doesn't necessarily increase the educational quotient.

The mentors you mentioned, I think, is absolutely key. In my experience of working with schools, the—I found the single biggest factor in the success of a science program was having what I call a go-to person in the school. If there is someone the teachers could go to when the guppies died or the equipment broke, it was a successful program, because they could just go there and say, hey, I have got this problem—say, no problem—tomorrow it will be fixed. But if the teacher, him or herself, has to take care of it, it just doesn't get done. Many teachers don't have the expertise. They certainly don't have the time. And the best science programs fail because they are equipment-intensive, they are time-intensive, and you need that extra help.

And so a major factor of the bills I introduced last year, was to provide grants, to provide some funding for go-to persons. We called them master teachers. Maybe we should call them mentors. Maybe we should even call them go-to persons. And I hope we can get that bill through.

Right now, I am working with President Bush. I am delighted he is so interested in making education his number one priority. But also, much of it—and this hasn't been publicized much—he is very keen on improving math/science education. So we are hoping, through his proposal, and through my bills, we will be able to solve some of your problems. So keep tuned. I don't have any specific questions, other than, once again, thank you for what you said and, without your knowing it, you have given a big boost to my bills. Thank you.

Chairman BOEHLERT. Thank you very much, Dr. Ehlers. Mr. Israel.

Mr. ISRAEL. Thank you, Mr. Chairman. And let me thank you, Mr. Chairman, and the Ranking Member for organizing this hearing. I have a question of Ms. Ross, if I may. I was intrigued by the program that you have helped to organize to expose American girls to educational opportunities, African-American girls to educational opportunities in art—in math, sciences, and arts.

One of the things that I hear in my district is not only is there a teacher shortage, but there is a particular shortage of African-American and Latino teachers in math and sciences, and I was wondering if you can comment on that or if you have any relevant experiences to discuss.

Ms. ROSS. In Baltimore City, the district that I teach in, there is a fairly diverse staff throughout the city, so I don't think that I can actually comment too much on that as far as a broader picture. In Baltimore, it is fairly well represented.

Mr. ISRAEL. Mr. Chairman, if I have the time, any of the panelists care to comment on that? Are there any programs that you are aware of that are geared to recruiting, attracting African-American, Latino teachers to math and science?

Mr. BRENNER. Well, this might not be entire relevant, but I know that Teach for America makes an active effort to recruit minority educators into the program. That is one of their big initiatives. So, you know, increased federal funding for programs like Teach for America, that makes an active—very active effort to recruit such teachers, might be an approach.

Mr. ISRAEL. Thank you. Thank you, Mr. Chairman.

Chairman BOEHLERT. Thank you very much. Mr. Grucci.

Mr. GRUCCI. Thank you, Mr. Chairman. We are, indeed, blessed with having the crème de la crème in front of us here today talking about an issue that is so very important to all of us. And in our—in my Congressional district, you know, sciences, math, and the likes, are a growing—I don't want to say industry—but certainly a growing field with the Brookhaven National Laboratory, the Plum Island Research Center, Stoneybrook University, and countless others.

And, Mr. Lampert, I believe you mentioned one of the programs called the Intel Science Talent Search Competition. We are fortunate to have a finalist from our district at the Ward Melville School, a Mr. Craig Bernan—Berman—I am sorry—as a finalist in that. So education is very important. It is something that has driven me here to Washington to try and make a difference with.

My question goes to the heart of some of the discussions that I heard earlier regarding teachers, teacher retention, bringing in more qualified teachers into the process so that we can get better educated students out of the back end. So, I guess, my question is two-fold. One, do you believe that the merit pay and incentives for school districts that excelled beyond expectations is something that might have a positive effect on luring more into the teaching profession and elevating school districts to exceed beyond their basic expectations? And I will open it to anyone on the Committee who would like to take a shot at that.

Ms. LEWIS. I am not completely convinced that merit pay is a positive thing. I haven't seen it in action, so I really don't know for sure. But I know that there are a lot of problems with teachers already being in competition with one another around testing results and isolating in their classrooms and not connecting enough and collaborating enough anyway. And I don't think that merit pay would increase that. I think it would make that problem worse. I think it would increase that problem.

I think that—I recently had a conversation with my principal about this issue because I am in this graduate program and I bounce a lot of ideas off of him. And he said that he feels like the problem with recruiting teachers is getting worse as opposed to getting better, because especially women—at one point in time, teaching was a career that they could have when there weren't as many careers—career opportunities open to women.

And currently, women who are the best and the brightest in math and science can get incredibly high-paying jobs that are much more—I don't know—they are maybe—they have more status or I am not really sure. But also, teaching is really difficult. I didn't realize how hard it was until I had a year to go around and work with other teachers and I wasn't teaching myself full time. But it is a really, really hard job. And there is too much on teachers'

plates at this point. And I think that it might be a more attractive vocation for people if there were some pieces that were not—that the class—especially at the elementary level, when you teach every subject, they are just—the standards and the assessment and everything else just gets piled up and nothing ever gets taken off. It is a really full plate for educators. And I don't really know what the answer to the problem is, but I know that it is increasing rather than decreasing at this point. So—

Mr. GRUCCI. And you feel that merit pay wouldn't have a positive effect.

Ms. LEWIS. Well, I—as I said, I don't for sure, but it doesn't seem that way, looking at it from the perspective of a classroom teacher. If I knew that I was going to get paid more for something that I did compared to a teacher who teaches next door to me, I don't think I could feel comfortable with that. I don't know whether you are talking about school systems or how that works and what you would base it on.

Would you base it on testing results and would the testing really reflect the education that was happening or that should happen. And, you know, there is so many questions that I have about it that, at this point in time, I couldn't say, great, pay them more and they will show up. I don't think that is necessarily true because of the nature of the job.

Mr. GRUCCI. Thank you. Mr. Chairman, if my time hasn't elapsed, I do have one other question.

Chairman BOEHLERT. Go ahead.

Mr. GRUCCI. This deals with some of the issue that I heard a moment ago regarding being able to go through the system and not having to pay too much attention and come out with a master's degree. We expect our children to learn and we hold them accountable to certain standards, testing, being one of them. We expect them to learn, we expect them to retain, and we expect them to demonstrate that proficiency in the subject matter that they have just been taught in. Do you think that a standard comparable to that ought to be held out for the educators as well, periodically making sure that they are, indeed, proficient in the subject matter that they are teaching our children so that we could be assured that they are getting the material and they are getting it accurately, they are getting it correctly, so that we know where the problem may lie if, indeed, children in school districts are failing? Anyone could take a stand.

Mr. LAMPERT. I would like to say just that I do believe that every science teacher should have a bachelor's degree in their field that they are teaching. I do believe that they should be educated like that.

Mr. GRUCCI. But do you agree or disagree and, if you disagree, why—do you think that they should be looked at periodically to make sure that they, indeed, have retained that same level of expertise that they got shortly coming out of their bachelor's degree?

Mr. LAMPERT. I don't know. I feel very confident with my own educational background. I see teachers without a very good background teaching science. In fact, I know a lot of science teachers that don't—are not certified as physical science teachers and they are biology teachers teaching physical science.

Mr. GRUCCI. And that is kind of the concern that I have, and I suspect that all of you sitting in the front of us, this does not apply to because you could certainly—

Mr. LAMPERT. Yeah.

Mr. GRUCCI. —sail through any kind of an examination whatsoever. But there—

Mr. LAMPERT. Right.

Mr. GRUCCI. —may be school systems employing teachers that aren't as equipped as you all are. And should we not determine that and then take some corrective action accordingly?

Mr. LAMPERT. I am concerned about the teachers that don't need to be tested and how much more work that is for them to go through the testing. So I would—I am grateful to have those teachers in the—and right now, with just the shortage of science teachers, it doesn't seem to be the appropriate thing to do at this point. That is my own feeling.

Mr. GRUCCI. Thank you. Thank you, Mr. Chairman. I yield back the remainder of my time.

Chairman BOEHLERT. There we go. For the purpose of an acknowledgment, I recognize the gentleman from Missouri, Mr. Akin.

Mr. AKIN. Thank you, Mr. Chairman. And I appreciate your breaking in here for just a moment. We have visiting us in the hearing today, a teacher from the St. Louis area who is receiving the Presidential Award. That is Ms. Karen Giesler. She is from the Center of Creative Learning. Karen, would you just stand up for just a moment, please? She is from Ellisville, Missouri. Karen is 18 years as a teacher and 8 years at the Center of Creative Learning. And she currently teaches grade 3 to 5. But she has set up a lasers and use curriculum for those kids, which includes allowing the students to work at the Magic House in Kirkwood. And I would just ask the Committee and those who are our guests to welcome Karen here in D.C. as she receives that Presidential Award. Thank you, Mr. Chairman.

Chairman BOEHLERT. Well, listen, as long as you are bragging, let me brag about my teacher. Mr. Richard Townsend of Sidney High School in Sidney, New York. Mr. Townsend, please stand. He has been teaching for 12 years, all at Sidney High School. If you don't know Sidney, you probably won't know it in the next 48 hours because we are still under 50 feet of snow. But he currently teaches physics, earth science, and meteorology for grades 9 through 12. Mr. Townsend, thank you for what you do so well, and it is a pleasure to have you here. And now, it is my privilege to refer to the colleague, my distinguished colleague, Mr. Udall.

Mr. UDALL. Thank you, Mr. Chairman. I think I have got three people here to brag about and maybe they would stand. I think Kristie Venrick is here—and you may have to work with me—Cynthia Gay, Amy Nicholl, and Anne Thrasher, are all four teachers from Colorado who have received this prestigious award. So thank you for the good work you do.

The—particularly, I would like to take a moment to recognize Kristie Venrick. She is from Longmont, which is my district, and she has taught for 21 years in the St. Vrain School District, and she is presently serving as the mathematics coordinator for all of the schools in that district. And in that capacity, she does cur-

riculum research and development and she writes curricular standards and assessments for the school district in both math and science. And she does staff development work with teachers and administrators and parents. And she has also participated in our student assessment too, the Colorado Student Assessment Program for fifth graders. So welcome to the three of you, and particularly, Kristie, I am proud to have you here.

As I think everybody knows, the debate about public education and education in general, at times can appear just to be an intellectual one until you have your own children in the school system. And I have a 10 and a 14-year-old in the public school systems in Colorado and so this hits home for me in at a personal level. So I thank you for the good work that all of you do.

I am really pleased, Mr. Chairman, we are also holding this full Committee hearing on this important topic and I look forward to additional hearings, particularly about technology in the classroom and how we might help you and your pursuits in that regard. Let me, taking that statement as a starting point, direct to the Panel then a question along those lines. Mr. Lampert, you talked about, I think, $100,000 in grants for classroom equipment. Can you share with us whether there was any federal dollars involved in that, and how did you find these sources of funding and what did you go through?

Mr. LAMPERT. Yeah. Sure. No federal funding at all. All of this was private corporations. And I am talking about the Verizon—Verizon and also local companies, Meyer Corporation, Partners in Science. These are all private corporations helping me out. Absolutely no federal money came into my classroom until now, which I am very pleased to bring back.

Mr. UDALL. Better late than never, I guess.

Mr. LAMPERT. Yeah. I should say that there are a number of very good federal programs that are out there. They are mostly in the workshop arena and not in the equipment. It is very, very difficult to actually get physical equipment into your room. And so you have to be pretty tricky in how to get those funds. So—

Mr. UDALL. I see a lot of people alongside you nodding and even the—your colleagues behind you in that front row. Anybody else on the Panel have a comment in that regard?

Ms. ROSS. I would just like to say that the program that I work for, the Ingenuity Project, has a lot of foundation monies and we do have a lot of technology. And that is great. When you are talking about technology, though, in addition to just having the physical technology, you must have training.

Mr. UDALL. Right.

Ms. ROSS. There are so many children who take a calculator and if you tell them—you know, an eighth grader, 5+4 and they will type that into a calculator. And I think—I mean, you just have to be very careful to train teachers how to use technology. I just wanted to put that out there.

Mr. UDALL. Mr. Brenner, do you have a comment?

Mr. BRENNER. Yes. Just a piggyback on Ms. Ross's statement. When I taught, my last year, I was in charge of a laptop computer program in my school, and it sounds very fancy and very nice, and every kid had a laptop computer and was very impressed by it, and

it sounded very impressive. And the reality was a little bit different than the image. And I think—and, again, to emphasize what Ms. Ross says, technology is not the panacea. You can't rely on computers. You can't rely on videotapes to do the job of a quality educator. So you have to be very careful to look towards putting a laptop in every child's hand or a computer in every classroom as a solution.

And the school—again, going back to the school about which I spoke, was built as a model school with a battery of computers in every classroom. And at 150-percent capacity, the computers sit at the back of the room and don't get used. Because when you have a class with 34 kids in there, you can't really successfully manage the use of four computers or five computers. So—

Mr. UDALL. Mr. Chairman, I see my time has expired, but I wondered if Ms. Lewis had any additional comment on this that maybe we could sneak in under the gun here.

Ms. LEWIS. My classroom only had one computer last year and my students are very involved in doing weather projects and all kinds of things that having Internet access and access to other schools and other districts around the country is very beneficial for. And I took the first—we got a piece of money first before we got the $7,500 award, for just being a state finalist of $750. And I put in another $250 and got another iMac for my classroom, so we have two computers now.

Mr. UDALL. Uh-huh.

Ms. LEWIS. And it has made a huge difference in my teaching. So—

Mr. UDALL. Was that your $250?

Ms. LEWIS. Yes. It was.

Mr. UDALL. I hope the record will show that you have invested your own money. I admire you for that. I also think we ought to be able to help you in some way so that you are not having to come up with your dollars. But I think that is probably why you are sitting in front of us today.

Ms. LEWIS. Yeah. Well, I think all teachers do that.

Mr. UDALL. I—that is what I have understood. One final comment. I know that we talk about technology. We say access. We say hardware availability and software availability. But I hear a lot about making sure then the teaching core has the training so they can—

Ms. LEWIS. Right.

Mr. UDALL. —actually use the technology in ways that make sense and it provides the learning opportunities that that technology ought to be providing.

Ms. LEWIS. Well, I am really lucky because I have a go-to person in my building—

Mr. UDALL. Uh-huh.

Ms. LEWIS. —who helps me with all kinds of technology things, like I am the go-to person for math. So it is great to have somebody who is an expert in their field of—you know, in every discipline in your school.

Mr. UDALL. Thank you.

Chairman BOEHLERT. My colleague—let me point out, I had the privilege of meeting this morning with the teachers. And one of the

things I was able to point out to them—Ms. Lewis is absolutely right—there isn't any one of us that doesn't know teacher after teacher that reaches into the pocket—takes money out of their pocket to put money into the classroom. And one of the things in the President's budget submission, for the first time ever, a $400 tax deduction for teachers who do exactly what Ms. Lewis and teachers all over the country are doing. Now, you might say, it should be 500, it should be 1,000, it should be more. But let me tell you, it is the first time ever that is long overdue. And that is one part of the package, boy, that deserves our enthusiastic unified support.

Mr. UDALL. Maybe we can build the whole tax package around that, Mr. Chairman.

Chairman BOEHLERT. The Chair now recognizes Ms. Biggert.

Ms. BIGGERT. Thank you, Mr. Chairman. We have a teacher from Illinois who is one of the—has won the Presidential Award, Lynn Zielinski. Are you here? Would you stand up? Thank you. Lynn is a—has been a teacher for 20 years and 18 years at Glenbrook North High School and currently teaches physics, astronomy, and space science for grades 10 through 12. And her favorite activity for her physics class is to create the ultimate music thing, which is a device that uses basic musical devices. And she says the ultimate student engagement is a trio of students playing garden tools. So it sounds like a fun class to be in. But congratulations.

I have to say that I have the utmost respect for all of you teachers, as I was a school board president in a high school at one time. But I really believe in public education and I believe it is so important to go into the schools and see what is really happening. So I have, oftentimes, gone into the schools and taught classes. And the one day was teaching seven periods of government and kind of dividing the class up into a legislature, and I crawled home. I think, you know, to get out of 3:30 was a welcome situation. So I really have great respect for what you do.

My question is going back to really women in science and math. And, as a lawyer, and when I went to law school, I was told that I was taking up the place of a man. So I have real concern about ensuring that women do get involved in the sciences and math. And I wondered if it is still true, and I can remember taking solid geometry—and I don't think they even have that anymore. But there were questions of the teacher, well, now, why don't you want to take this? Why don't you take home economics or something like that too? So—and I hate to see that. And I—certainly law school has changed now where women probably have more women students, in a lot of cases, in the school than men. But is it still true that women are discouraged or girls are discouraged from taking some of the courses and really getting a head start on—in math and science? Shaking of hands. Maybe, Ms. Lewis.

Ms. LEWIS. I think that it is really sad for me to see that once girls get past eighth grade that their interest and their motivation seems to slack off. And I am not really sure why that is, because I feel that there are a lot of women teaching math and science and encouraging girls to go into those fields. But I am not sure our society helps embrace that. And I think we need more than just inside the schools teachers encouraging kids. I think it has to be, you

know, from our communities and from the business world and from the science world and just more emphasis from outside to help foster those interests.

Ms. BIGGERT. Well, that is what I have heard too. So—Ms. Ross, do you have anything to add?

Ms. ROSS. I just want—you were nodding your head no. And I think that girls are definitely still discouraged, even by people who don't realize, necessarily, they are encouraging—

Ms. BIGGERT. Uh-huh.

Ms. ROSS. —you know, the boys more. I think that people need to very much be talking about gender equity in the classroom and talking about—you know, you may not be even doing—you might not be aware of what you are doing to encourage boys over girls or to discourage a girl in a way that you think is an offhand comment. And I think there needs to be a real look at gender equity in the classroom.

A colleague of mine had his classroom videotaped and he specifically gave it to me to bring to some students that I teach, some graduate students, to analyze it for his gender equity. And, you know, I think more of that has to be done, letting yourself be open to getting feedback and whatnot. But gender equity, I think, still must be something we are talking about.

Ms. BIGGERT. Is there anything that we can do to encourage that? I—and that is one reason, I think, of going into the schools as just as—as a role model for—

Ms. ROSS. Yes.

Ms. BIGGERT. —women doing things, as well as—I know a lot of my colleagues do that too. But what could we really do then to focus on that?

Ms. ROSS. Continue a dialogue. I think you coming into schools and other successful women in all disciplines coming into the schools and showing—and having the kids go out also, not just on a, you know, one day of go to work with your mom or, you know—

Ms. BIGGERT. Uh-huh.

Ms. ROSS. —whatever, but actually getting, you know, mentorships and partnerships with others in the community.

Ms. BIGGERT. Anyone else? Thank you, Mr. Chairman.

Chairman BOEHLERT. Time has expired. The Chair now turns to a former Superintendent of Education for the State of North Carolina, Mr. Etheridge.

Mr. ETHERIDGE. Mr. Chairman, thank you. And I appreciate—let me join my colleagues in thanking you for pulling together this meeting today and having these outstanding teachers here. They are a representative of some outstanding people we have all across America. And I am always heartened and encouraged when I see the quality of the people who are—who work with our young people every single day. Too many times we hear about the problems and we seldom take the time to thank those who put in those long hours.

Before I ask my question—I went to a school on Tuesday morning, breakfast, as part of the National Breakfast Program. It was a very cold morning, as you can remember, all across America, especially in North Carolina. There were three teachers at 7:30 standing out with bus duty. Some of you may do the same thing—

and hall duty. This was an elementary school. And then they were going through the lines helping the children in kindergarten, not only getting the food on their plates, but keeping in line, and teach while they were having lunch. And I see heads nodding. If you have been in the elementary school, you know where I am headed. Teachers teach all day long and in the evenings, and I thank you for that.

Let me get to my question though, because part of the—this may have been covered, and, if it has, I apologize, and I had to step out. But as we quickly move in the 21st century, we are moving into a knowledge-based economy in everything we do more and more, and it is making the challenge of education even greater, especially in science and math—not only attracting them, but keeping the young people so that they will teach. And one of those issues deals with—you touched on it a minute ago, some of you did, on this issue of technology. And I am increasingly concerned about the digital divide that we are facing, and it is growing bigger.

When I hear one teacher talking about having one computer in the classroom—that is only a tool we use, but it is a tool that we ought to have more of. And as we head in that direction, I hope you will share with me, as we look at this whole issue, how can we keep from having such a great divide for our teachers and our young people so that they can succeed in the 21st century? I hope you will share with us, in the time we have, about how overcrowding in your classrooms when you are teaching science, the lack of lab space, a good lab space, that with the computer and the Internet, and all those things we have to do, factor in—overcrowding, the lack of space, the lack of equipment, the lack of access to the Internet and computers, because all these are tools that we use to move this thing forward.

Mr. BRENNER. I wrote a grant—I think it was my second year of teaching—to receive funds for an after-school program, and much of the money went to buy equipment for my students to study the Hudson River. And we would spend the better part of the year studying the Hudson River, performing tests, in cooperation with an environmental organization in the Bronx. And then, I took my students to Washington, D.C. to do a science exchange with students in Arlington, Virginia, actually, who were doing a study of the Potomac River. And I say this to say that this sort of science could not have happened with the existing infrastructure in my school. That I had to pursue outside funds in order to have the equipment to do this.

In my last year of teaching, I wrote a grant with some other teachers to build a model science classroom in our school. Now, I say model, but it was really just bare bones. I mean, we had desks that wouldn't catch fire and we had beakers that the kids could use and I had microscopes that the kids could use. And I know in the New York City school system, there use to be money for lab assistants that would set up laboratories, that monitored lab safety, that would staff the science room. And when I came into teaching my first year, I worked after school with another teacher to clear out our lab room because it hadn't been used in years and years and years, and these lab assistants had long since disappeared.

So it is vital to have funding for lab assistants, for space. Certainly, class overcrowding—it is difficult to perform effective laboratories with 32 students. And then if you calculate in the fact that you don't even have the equipment or you have to schlep it down from three floors up, it makes it all the more difficult. So I agree, yeah.

Mr. ETHERIDGE. Anyone else want to comment?

Mr. LAMPERT. Yeah. I think that the problem of technology in the classroom—I think what the Federal Government can be doing is to give incentives to corporations to partnership up with us. I don't know how you would do that, with tax incentives or whatever, or actual people to contact the high schools through the—from the corporations. I think that really, really would help to bring us equipment. And the other part is colleges and asking them to help out with us.

Mr. ETHERIDGE. Thank you. I see my time has expired, Mr. Chairman. If we have another round, though, I do want to talk a little bit more about how we get it into every classroom, not just those classrooms that are fortunate enough to get a grant, because when we talk about leaving no child behind, my question becomes, which one have you decided you are going to leave behind, that is those who don't get the grants.

Chairman BOEHLERT. Thank you.

Mr. ETHERIDGE. Thank you, Mr. Chairman.

Chairman BOEHLERT. And the other thing that concerns me, grant writing is a special skill. And I am wondering if too many teachers are taking too much time away from teaching to do grant writing. And maybe we ought to get some professional grant writers added to the staff of schools so you can line up behind, you know—well, another story for another day. Mr. Shays.

Mr. SHAYS. Thank you. I only have 5 minutes, so I am just going to ask a lot of questions, and I would love short answers. Could you tell me the three most critical things schools could do to encourage more young men and women—young children to get involved in science and math? Ms. Ross, do you want to start out?

Ms. ROSS. I can think of one very critical thing.

Mr. SHAYS. I am not asking the Federal Government—the schools.

Ms. ROSS. The schools—is to—as the administrator, whoever is doing the hiring, get people who are excited about math and science and who have the knowledge. In my district, I was giving an in-service on Monday. And I teach mathematics, so I was giving a mathematics workshop, and they were all middle school and high school students—or teachers, excuse me, having some difficulty with some basic percentage problems that I give my sixth graders. So there were some scary things going on. So I would say get excited people who know their stuff.

Mr. SHAYS. Don't pay too close attention to Congress either then. What other ones?

Ms. LEWIS. I think that teacher training is really important also.

Mr. SHAYS. Okay.

Ms. LEWIS. And I work with elementary school teachers who often, the last time they ever had any kind of algebra was in high school and they, maybe, at that point in time, algebra was taught

in a very traditional formula, not hands-on way. And teachers that I have worked with—I did a workshop this winter on algebra—

Mr. SHAYS. Okay. I am going to try to get some more on this. I don't mean to interrupt you. I love all four of you, but I don't want to take my time telling you I love you and I don't want more—I want to just get some answers here.

Ms. ROSS. Teacher training.

Mr. SHAYS. Okay. What would be some others?

Mr. LAMPERT. I want to second what Ms. Ross said about the administrators—administration. That is very heavy sports-oriented in the high school. And there is some money there, but the focus is not toward the academics as much as it could be.

Mr. SHAYS. Some others?

Mr. BRENNER. I just want to second what Ms. Lewis said, professional development, partnering up with local universities and schools, similar to this biotechnology camp that I am working on in Brooklyn.

Mr. SHAYS. Now, some of you went through the traditional teaching process of going to a school of education or a graduate school of education. Ms. Lewis, you did, and Mr. Brenner, you did not. Ms. Ross, you did not. Mr. Lampert, you did. Now, what I am told, that was news to me, is that the schools of education, particularly even the graduate schools, are the stepchildren, with no disrespect to stepchildren, but the stepchildren of the institution, like Teacher's College in Columbia is not even directly owned and operated. It is a separate institution. A question to you, those of the two of you who have gone through it, are you hearing this as a concern that we don't treat teacher's colleges with the same respect we would treat others?

Mr. LAMPERT. I would say so.

Ms. LEWIS. I would agree with that.

Mr. SHAYS. Okay.

Ms. LEWIS. I went to a really good school for undergraduate Lesley College, which is now—

Mr. SHAYS. I—yeah, I heard you say that—

Ms. LEWIS. Yeah.

Mr. SHAYS. —and I was interested. You were—with real pride.

Ms. LEWIS. It is Lesley University now—

Mr. SHAYS. Yeah.

Ms. LEWIS. —because it just turned to a university. But it made a huge difference in how I viewed education and what I was going into to go to a school that said you are just going to be great and this is going to be a wonderful life experience for you.

Mr. SHAYS. So do you think that the Federal Government could get involved with trying to lift up the—the schools of education in some way?

Mr. LAMPERT. I want to restate what I had said one time before, is that I learned all of my teaching skills from my mentor—

Mr. SHAYS. Okay.

Mr. LAMPERT. —when I did my student teaching. And that is a story you hear again and again and again, going out there and actually teaching. All the things that you learn in education school are things that you might want to do later on after you become a teacher.

Mr. SHAYS. Do you feel your schools give you the flexibility to properly diagnose the needs of the children and then design a curriculum around their needs?

Ms. LEWIS. I do.

Mr. BRENNER. When I taught, I would say, no, because of the sure number of students and the lack of support from the administration.

Mr. SHAYS. Mr. Lampert.

Mr. LAMPERT. I didn't quite get the question. You mean, are schools—

Mr. SHAYS. Are you allowed to—are you given the skills to properly diagnose the students' needs and then design a curriculum around the students' needs?

Mr. LAMPERT. No. I—it is something that you feel when you teach, what the kids need. So I have never been really properly trained to do that out there.

Ms. LEWIS. I have a special ed degree as well as an elementary ed degree. I also teach in Vermont, which, I think, is—sounds like it is pretty different from other places. It is a very small state and a lot gets done there in education that is difficult to do in a larger state. I am extremely fortunate to be where I am, and I recognize that, especially spending time with the other awardees this week. It is just a different world.

Mr. SHAYS. Thank you.

Ms. LEWIS. I only have 18 children. So—

Mr. SHAYS. Thank you very much.

Chairman BOEHLERT. Thank you very much. Mr. Baird.

Mr. BAIRD. Mr. Chairman, I would like to request your indulgence and, perhaps, yield to Mr. Matheson. I would like to particularly ask Ms. Ross a question as a fellow psychologist and other panelists as well. So I might wait until she returns.

Chairman BOEHLERT. That is fine.

Mr. MATHESON. Thank you, Mr. Chairman. Thank you, Mr. Baird. Mr. Chairman, I appreciate the Committee holding this hearing today and appreciate the Committee's focus on the role education and teachers play in furthering science. And I certainly appreciate all the members of the Panel. These individuals are taking time with us today to share their perspectives, and I am certainly glad you could all come here. I am also pleased that a teacher from my district, Ms. Mary Lou Damjanovich, has received the Presidential Award. She teaches at Bella Vista Elementary School in Salt Lake City. And I am real proud to have someone from my district associated with that.

A question I would like to ask—we just, on the previous line of questioning, heard a little bit about continued teacher development, teacher training. And I would like to hear from the Panel, if they could describe to me the various strengths and weaknesses of different science and math professional development programs, such as the Eisenhower Program, or the NSF teacher training programs, other programs associated with the Federal Government.

Mr. BRENNER. I can speak briefly about the Eisenhower Program. I was in conversations with a friend the other day and she was talking about the fact that, in our district, the Eisenhower funds are funneled largely towards math education, but not profes-

sional development, as they are supposed to be. Apparently a lot of the funds end up going to purchase books and design curriculum. So, as far as I understand it, in my particular district, in Manhattan, the funds, as they were supposed to be spent, were not.

Mr. LAMPERT. For my case, the Eisenhower funds, it is quite the opposite. In our district, we are quite organized with Eisenhower. It is all computerized and it is very efficient now to get the money. It wasn't as efficient before. It is never allowed to get any equipment with it. It is all professional development, which is—it would be nice to get some equipment from it too. So—

Mr. MATHESON. Anyone else have any comments on any federal role—additional federal role for teacher training or development?

Ms. ROSS. The program that I am working with right now through Johns Hopkins University is a—called Project Site Support. And I spoke about, in my testimony, they received a teacher enhancement grant. And what they do is, teachers commit to 5 years in an urban setting, and, in exchange, their master's degree is paid for. And many of them in this program do not have an education background, but they are getting a master's degree. They will be certified. And by keeping them—by giving them this five-year commitment, at the end of 5 years, I think the majority of them will really feel a commitment to urban education and they will stay.

I think that that is one of the important things, is trying to figure out how to keep them there. I see a lot of very good colleagues of mine who get their start in the city, in urban centers, and under-resourced areas and then say, forget it, I need more money. I want—you know, I am sick of this, I am sick of that, and then they go outside of the urban areas that really need them. And I think that if you can get someone to commit to 5 years, then they would be probably committed, you know, life long.

Mr. MATHESON. Mr. Chairman, I yield back the balance of my time.

Chairman BOEHLERT. Thank you very much. Mr. Nethercutt.

Mr. NETHERCUTT. Thank you, Mr. Chairman. Welcome, ladies and gentlemen. I am glad you are here and I appreciate your help to the children of our country. As a father of a sophomore in high school and a college junior, I have been there with respect to the importance of science programs and trying to get a sense of really whether—what really excites my young children about science. And it really focuses on the teachers. If the teachers can bring it alive, it brings it alive—the curriculum is alive for those—for our children.

I am informed that—of the President's budget of about $18.7 billion for education programs, K through 12, a small portion of that is science and math related. I am also informed that there are about 63 programs spread across 24 agencies of government for education, science and math education. That is of some concern to me because it seems to me that it is fairly diffuse. And I guess the challenge is to make sure that those programs benefit you on the ground in the classroom in helping children.

My question to you is this—preceded by a statement. I have heard from a lot of school district superintendents and teachers in my district, which is the 5th District of Washington State, and they

have said they are frustrated with a lot of the paperwork that comes along with the programs that are well intended. Are you experiencing that in your teaching careers? Do you see there is an awful lot of paperwork that needs to be filled out in order to get some of that $18 billion, or thereabouts, that comes through a portion of it for science and math?

Mr. LAMPERT. Yes. I can give you an example. Two weeks ago, I was invited from Electra Scientific Industries right as my Micro-Electronics class came up for a field trip. Great, I have to come up with $250. So I applied for some federal program, and it was too much paperwork in order to get done in time for the field trip. So I had to—

Chairman BOEHLERT. $250?

Mr. LAMPERT. $250. So, you know, little things like that that are spur of the moment are unique opportunities that you want to take advantage of, and it is very difficult to make the system move sometimes.

Mr. NETHERCUTT. Similar experiences among the rest of you, or is there a general consensus that there is a lot of paperwork that needs to be filled out in order to get federal money?

Ms. LEWIS. I think so. I am really fortunate, again. I feel like, yeah, I am from Vermont. Our district has a grant writer that is hired to do it.

Mr. NETHERCUTT. I think it would be helpful to this Committee—I serve in this authorizing committee, but I also serve on the Appropriations Committee, which determines which money goes where, and these programs have to be authorized. It would be helpful to us, and me, in particular, if through your respective school districts, or you, individually, could identify some of those frustrations. The paperwork that needs to be filled out for $250 worth of assistance seems silly to me, and impractical, and inefficient in our federal education systems. We would rather spend that money on children, and teaching, and classrooms, and so on, rather than paperwork and people to fill out paperwork.

I would just ask you this, too. Acknowledging that there are these many programs and these many agencies, is there an adequate job being done through the federal system to let you know in your respective districts of the programs that are available through the federal system? I sense not, but maybe you could say yes or no. Do you know—I mean, were you surprised at that number? I was surprised at that number, and I don't know if you are able to take advantage of some or very many of those programs. And maybe if you have advice for this Committee, or us as members, think about it and give us your best thoughts. But maybe you have an answer today.

Mr. BRENNER. Just a quick comment. As frequently happened in my district, my last year of teaching, a notice came through that I think it was on the order of $20,000 or $30,000 needed to be spent tomorrow to buy equipment. And this happened—I mean, it was actually kind of a running joke in my school and in the district that this happened quite frequently. So in answer to your question, I would say yes.

Mr. NETHERCUTT. Same experience with the rest of you? Would it be helpful to have some sort of—maybe there is a central infor-

mation location that you all can find out about what programs are there and what might be available. Maybe that is through your administrators—I don't know. But maybe we can think about some form of centralization in the federal system.

Anyway, one final comment, Mr. Chairman. I know that Kristi Rennebohm Franz is also a presidential award winner. I don't know if she is here—if Kristi is. She was also a Peace Corps winner for her work in science, but also, her involvement in Africa and teaching in the Peace Corps. So she is kind of a dual winner, and she has had some health problems, and bless her heart, I don't know that she was able to make it out for this award ceremony. But congratulations to you all, and thank you, sir, for the time.

Chairman BOEHLERT. Thank you very much. Mr. Lampert, could you just tell a little bit more about that $250? I can't conceive of a federal program where you have to go through a lot of paperwork to apply to an agency of the Federal Government for $250.

Mr. LAMPERT. There is an administrator you have to go through, and he has to—

Chairman BOEHLERT. In your district or school?

Mr. LAMPERT. In my district. Okay. We have a person that is in charge of these particular funds, and I had to verify that my kids were eligible for these funds. And he needed to make sure, according to his criteria, that he was under the allusion that the money had to go through the entire district and couldn't be funded directly to only my classroom. Little things like that—I mean, that sounds weird to you, probably, but that is what I was going through.

Chairman BOEHLERT. It doesn't sound weird; it sounds kind of stupid.

Mr. LAMPERT. But you know, what was nice is that I explained that to the company, and the corporation came through. And they said, you know, $250—we are going to bring you up here. I mean, the whole point was I am going to take my electronics kids to see careers in the electronics industry. That was perfect. And it was something that happened so quickly that—it was National Engineers Month last month—so that was a perfect thing for them to do, and it is very rare to have those opportunities. But I couldn't jump at the spur of the moment through a federal program to make that happen, nor my—I should also say, my administrator, my principal, would not fund that $250.

Chairman BOEHLERT. Do us both a favor, if you will. When you get back, you know, just get a little more specifics on that and drop me a note, because I can't conceive of NSF or any federal agency having a pot of money where they would require a school teacher anywhere in America to fill out a long application to apply for $250. I mean, a lot of federal—

Mr. LAMPERT. It is not so much the paperwork, it is convincing the other person to do it.

Chairman LAMPERT. Yes, but I would like a little more information on that one, because the money from the Federal Government in a number of areas goes to the state for educational purposes. And then the state, unfortunately, in too many cases takes too much off the top as a brokerage fee, and then it filters down to the local school district. And then the school district allocates to the individual schools, and then you in the classroom want to take your

kids on a field trip, and they say, well, there is federal money for field trips, but you have got to fill out this long application, nothing that we require from Washington. We are not going to be so stupid as to require your valuable time to go a long application process for $250. Gee, I can't believe that. So really, do that, if you will.

Mr. LAMPERT. I will do that for you.

Chairman BOEHLERT. And we will keep it confidential. Dr. Baird, you have been waiting patiently, because you want to talk to a colleague.

Mr. BAIRD. Mr. Chair, thank you much. I wanted to wait until Ms. Ross came back. As a fellow psychologist, I want to applaud you for going into teaching. Some of us psychologists go to Congress; others pursue even higher goals, to teach in the public system. And I want to compliment each and every one of you. I have waited this long because I want to ask you a very serious question. Following Sputnik, our Nation made a national commitment to science. And while others have suggested that the Federal Government has not a mandate, necessarily, to involve itself, I think there is nothing preventing us from involving ourselves, and I believe it is, in fact, paramount importance to our Nation that young people have access to a quality science education everywhere.

In a time of dot-com wealth, what would you suggest from your experience and your knowledge of your peers, the few things that are critical to attracting people in your age group and your talent level who could easily go somewhere else for a lot more money and prestige to go into the professions you have chosen? What do we need to do differently? No more prestige, in my judgment. There is no higher prestige than public teacher, as the son of one, but—

Ms. ROSS. That is definitely very difficult. I think showing people examples of how rewarding this career can be. I do think that teaching, as a profession, does not have a lot of prestige, and I do think that we need to make teaching a profession that isn't, oh, well, you couldn't do it so you go ahead and teach it. I think that if you look at some other countries and the way they look at teaching—for example, I use a curriculum from Singapore. And if you look at not just their text books, but look at what the teachers do, the teachers actually go through a system of collaborating. They have time to collaborate with each other. They are revered as professionals and I think they are really treated as professionals. They are expected to have good knowledge. They are expected to know the content. If you teach—like you said, if you teach 3rd grade, you still should have a very solid math background. Do you need to be, you know, versed in calculus to teach 3rd grade? No, but you cannot be teaching, you know—you can't teach algebra and have questions about percents. It cannot happen.

And I think that by, you know, just bringing prestige to the teaching profession would make others see it as a viable option where many of my, you know, friends and colleagues in my age group, you know, they are looking for something where they will have more recognition.

Mr. LAMPERT. I would like to say, you are doing it right now. You are giving us prestige. And I can tell you that when I talk to engineers who have made the choice to go into the dot-coms, my friends who are making three times what I make, they tell me they are

envious of my job, they really do. And you will never, ever achieve pay equity with the business, and you shouldn't strive for that. That is not what it is about. We chose teaching because we wanted to do the job.

Mr. BRENNER. Just to talk about finances for a bit, I do think that there are some financial incentives that can be offered to attract teachers in particularly under-served areas. I mentioned a few of them in my testimony, housing allowances in neighborhoods where teachers teach, increase federal dollars for licensed teachers in shortage areas, increase the initial salary for teachers, particularly, in shortage areas of math and science. So I think that the financial component is a part of the larger solution, but certainly isn't the only approach that should be taken. I mean, increasing the prestige of the profession has to happen. And it is funny, there is a direct parallel with medicine. At the turn of the century, medicine was not considered a prestigious profession. And one of the things that happened was the education of physicians was standardized, the bar was raised, and with that came added prestige.

Mr. BAIRD. Thank you for your thoughtful answers, and again, thank you all, and all the award winners for your great service to our kids and to our country.

Chairman BOEHLERT. Let me ask the Panel a general question. Should we consider—I was going to say pay differential. I mean, you know, professions where skills—businesses where skills are in short supply, the people who have those skills get more money than the rank and file. So should we entertain as a Nation, embrace the theory that people in science and math disciplines should be paid more for teaching than English teachers or Social Studies teachers? Do we have pay differentials? All right. We don't have pay differentials. Then you have got the problem. How do we get the people—here is what happens from my experience. The typical bright young person graduated from college with a degree in math, or science, or engineering, might want to go to teach, thrilled by the prospect of helping to mold young minds and recognize the contributions that person could make. But that person is also about $20,000 in debt, maybe wants to get married and start a family. So he says, do I go to school "XYZ" in Vermont, or New York, or Maryland, or wherever, and maybe start out at $25,000 to $30,000 a year teaching or—is that in the ballpark? Isn't it? Higher? Lower?

Ms. LEWIS. That is a little high.

Chairman BOEHLERT. All right.

Ms. LEWIS. Probably, like between $20,000, $22,000.

Chairman BOEHLERT. All right. Low $20's.

Ms. LEWIS. For Vermont.

Chairman BOEHLERT. Or does that person go to the Fortune 500 company that just wants these wizards in math and science, and offers double that? I mean, the last reportable figures are 1999, I think, and the average starting salary for a college graduate that year, all disciplines, was $44,000. And so what happens? Don or Sue may want to teach, but they want to pay their bills, start paying off their debts. They want to get married and start a family. And a lot of people are just going the easy way, you know, making a prudent business decision. It may not be the best career decision.

It may not give the best satisfaction, but going that way—so I mean, money isn't the answer to everything, but we have got to put more money on the table to get the people we want into education. I mean, I am thankful that all of you are there. So that is why I look at the prospect of pay differentials for certain disciplines and wonder if that is not a partial solution. We don't have any trouble getting Social Studies people into the classroom. There are a lot of them, we have an abundance of them, and thank God we do. Social Studies is very important. But if something is in short supply and something is in—we have an excess of, it seems to me you have got to have some incentives to get the short supply people to do what you want them to do. You can't expect everybody is properly motivated as you are.

Listen, here is what we promised. We promised at the end of the day, we would have an open mike, and the hearing record is still open. So if anyone would dike to say anything for the good of the order—all right. We will go—and we ask you to do two things—we ask you to do three things. (1) Go to the mike. Diane has a mike there. (1) We ask you to take the mike; (2) identify yourself; and (3) keep it relatively short. Go ahead. The first hand there.

Ms. GEISBUSH. I am Sandra Geisbush from San Antonio, Texas, and I have heard a lot about money today. And I can't speak for all teachers, but it is not about the money. And when you are talking about pay differentials, as we were just talking about, think about the time it takes to prep a hands-on science lab. Think about the time it takes to prep for a Social Studies class. What is the one class when you don't have time to do anything else, you will get some things in, but science is going to be the first thing to go in elementary school, because of the time. So be thinking about the time factor. How can we bring—how can we use money wisely to bring substitutes in to help science teachers become better science teachers, to help math teachers become better math teachers? Think along those lines.

And don't forget the elementary school teachers. Children's minds develop very, very quickly, and if you are wondering why a lot of women do not go into the math and science fields, maybe they didn't have those rich opportunities when they were 8, 9, and 10 years old. It is like learning a foreign language. If you learn to speak a foreign language before you are 10 years old, you will speak without an accent. Mathematics is a language, and if you don't have some good solid foundation there and rich experiences before they are 10 years old, they are going to speak that with an accent, too, and that he accent is going to keep them from being as successful and willing to take the physics classes and the chemistry classes. Thank you.

Chairman BOEHLERT. Thank you very much.

Ms. EZRAILSON. Hi. I am Cathy Ezrailson from Conroe, Texas.

Chairman BOEHLERT. Well, wait a minute. Texas is dominating this hearing. Recorder, are you able to get these names all right?

Ms. EZRAILSON. E-z-r-a-i-l-s-o-n is how to spell it.

Chairman BOEHLERT. I think all the rest of them out there are from Texas. Aren't they?

Ms. EZRAILSON. Yes. I am a physics teacher and I have a good idea. My husband and I were talking the other day about how to

fund teacher increases nationwide without appropriations, and that is to make teaching tax exempt. That would automatically attract people to teaching and give us a big boost in salary, so that consider that, please.

Chairman BOEHLERT. Thank you.

Mr. CRAIG. My name is Curtis Craig. I am from American Fork, Utah. A great Panel—they had some wonderful things to say. A couple issues that I would share: (1) We do kind of live in a self-imposed communistic society in education. We all want the same pay, and we know our English teachers are grading papers all night long, and it would be really, really hard to walk into a classroom getting more money than somebody else, knowing that they probably do as much work. I would—I don't know. I would like more money, though. There is no question about that.

But it isn't a money issue. In terms of federal dollars that we see, things that we—that are available to us, seem to be very cryptic. We don't know it is there. NSF monies and, especially, Eisenhower monies. As President—I am the past President of the Utah Science Teachers Association. I cannot urge you enough to listen to teachers' cries. This hearing—misappropriation of Eisenhower dollars, to me, seems impossible because of the ties to it, that we have to be accountable for it in terms of teacher learning and in-servicing. And to say that a bunch of it is misused and lost scares me because it will make you guys not want to keep it in the package, and we cannot lose Eisenhower dollars, we cannot. Every teacher in Utah that is in-services is in-serviced with Eisenhower dollars, period. That means $300, about $400 a year in just science, and probably 400 in mathematics. We cannot lose those dollars. The minute—man, that scares me.

And then, you know, there was probably some other stuff that I wanted to say, too, but I am out of time. Thank you for listening. Thanks.

Chairman BOEHLERT. Thank you very much.

Mr. WACHHOLZ. Thank you. I am John Wachholz from Salina, Kansas. And first of all, Mr. Chairman, I thank you for this opportunity. Thank you for your comments this morning and everything today. I have just four things to say. I have a little prestige. I believe I am the oldest candidate here, and I have been at this for about 40 years, so I have a lot of experience. But I would say some things that you could do, buy me a computer, buy these new teachers computers so they have their own to get started with. I think that would be a big help. Be sure and educate the older teachers like myself so we don't have self-education in this area of technology. I have so many teachers in my school that are so far behind, they are scared, and they need help in the area of technology.

Chairman BOEHLERT. For example—let me interrupt here, if I may. If the National Science Foundation had regional seminars on technology, is that the type of thing that would be appealing?

Mr. WACHHOLZ. Anything that would help them to catch up, because the students—every day, the student is ahead of the teacher, and they will never get caught up. But get them at a level where they will feel confident to work with the student.

Chairman BOEHLERT. You have got three or four points, and I will let you go there. But one of the things we have to be very

mindful of the fact is that, essentially, since the founding of the republic, elementary and secondary education has been the responsibility of state and local governments. You know, the Federal Government, we only contribute about 6 percent of the total funding for elementary and secondary education. And that jurisdiction is jealously guarded by Americans across the country by and large. So there are some things we can get involved in, like the National Science Foundation, in giving direction and resources through the Department of Education. But in terms of certification or alternative certification, in terms of a lot of other things, the decisions are made by state departments of education and local school boards. And I think overwhelmingly, that is the way America wants it. They don't want the heavy hand of Washington dictating everything. So I am just trying to take as much in as we can to see where we can be more helpful.

Mr. WACHHOLZ. If there were a program through that, I think that would—

Chairman BOEHLERT. And that is something that is very doable, it seems to me.

Mr. WACHHOLZ. Right. Another program that I think would be very doable—I have a lot of experience. If I could somehow get funded some way, where you could pay me so I could help the new teachers and be a mentor, so that we don't have all these retired teachers just leaving and dropping everything. I can give them files, I can help them immensely.

And the last thing, if there were a program to fund, what I would say, basically, a secretary or a lab assistant for a teacher so I don't have to do all my communication, all my typing, all my things. If there were some way to fund a program where we could have an assistant to help me do, basically, that work, I think I could be much more effective.

Chairman BOEHLERT. Thank you very much. The other thing is Dr. Etheridge or somebody mentioned it during the questioning—a good portion of teachers' time, work time, is involved in non-teaching activities—hall monitors, study hall monitors, that type of activity. And there are some arguments for that, because I think the overwhelming evidence argues against these extra activities, but the argument for it is the teacher gets to know the students better and all that sort of thing. So I don't know. If anybody has any thoughts on that, I would welcome that, too. Next.

Ms. THRASHER. I am Anne Thrasher. I am from Colorado Springs, Colorado. I wanted to echo what he said, from Kansas, and also, what you just said. Those are a couple of things I just wanted to address. My plea, I guess, is that there is a mechanism for sharing the expertise of experienced teachers with other teachers. And that it shouldn't be so difficult for teachers who would like to receive training, in technology in particular, to receive that training. In my experience, the people whose families are receptive to this are the ones who go out of state to receive the training. I think it would be more helpful if people could come into the area where the teachers actually, you know, live and work, either in the classroom or during the summer, perhaps, just into their communities. Personally, I have someone in my building right now. I am the math chair at a high school. And he—I am looking for someone

to receive training in the pre-engineering curriculum, which is one class I teach. And he told me he can't do it this summer because his wife is expecting their second child. He would have to go to New York to do this and so he has opted out. I am having a difficult time trying to replace part of what I do.

The full plate idea that you just mentioned, I made a slight list. I think we are asked to do more and more. In addition to being math chair—and again, anybody here would say the same thing—I am on an academic council, district math curriculum committee, Renaissance committee, honors endorsement committee. I am the knowledge coach, the knowledge master coach, the match wits coach. There just isn't anymore time. And yet, I mean, I really do love what I do. I believe, really, the reason that I was recognized—and I hate this. I talk for a living—why am I nervous? I believe one of the reasons I was recognized was my use of technology. Graphing calculators in trigonometry classroom, computer software to teach algebra, this pre-engineering curriculum that I mentioned. And yet, for all of those, I had to travel out of state to receive the training, to purchase the hardware. And here is my offer to you. I mean, I am looking at leaving teaching shortly. I would love to go teach other teachers. I would love to travel almost anywhere to teach other teachers, because not only have I had an impact in the classroom as a teacher, but I understand that if I could teach other teachers, that would just increase that influence, you know, more and more and more. And I think I have some expertise there, but I, honestly, don't know how I can do that, how I can make that offer to anybody.

Chairman BOEHLERT. Thank you very much. Next.

Ms. ZIELINSKI. Hello. My name is Lynne Zielinski. I am a physics, space science, and astronomy teacher at Glenbrook North High School in Northbrook, Illinois. I have three points I would like to make. The first one is that teacher staying in teaching, good teachers staying in teaching, is important, as getting new teachers into teaching math and science. One of the ways that you could keep teachers teaching is to give them sabbatical opportunities. Sabbaticals are not prevalent throughout the United States. Only some schools in some districts in some states have sabbatical programs. Our program in Illinois happens to be every 7 years you can take a year's sabbatical at half-pay. This is really important because I have done it and it has helped me tremendously to become an excellent teacher, and to give me an opportunity to not only spread myself around to other teachers throughout the states, but also, an opportunity to learn technology.

The second item I want to make a point about is time. Teachers don't have it. We would love to have more time. A lot of times I hear people say, oh, you are a teacher, you have 3 months off in the summer. I don't have 3 months off in the summer. I am lucky if I have 2 months off, and in that 2 months, I am developing curriculum and I am doing all sorts of things. Even during the teaching day, it would be wonderful if I could have some time to be able to talk to my colleagues, and look about at what I am doing, and to reflect on what I am doing. That would be very helpful.

And the third point that I wanted to make is that NSF is not the only national program, or federal program, that could offer

money and opportunities for teachers. There are other programs out there. I deal quite a bit with the NASA Student Involvement Program. The NASA Program is an amazing program that allows students to actually build, design experiments, fly them aboard the shuttle, and in sub-orbital lockets. I think that this opportunity needs to be made more to teachers and to students to give them internships at these NASA facilities and places as well. There are other places, other national organizations, that would do the same thing. Thank you.

Chairman BOEHLERT. Let me ask you, what did you do during your sabbatical?

Ms. ZIELINSKI. I have taken two sabbaticals. My first sabbatical was in 1990. I worked at NASA as a trainer for the astronauts, and I worked with the remote manipulator arm teaching astronauts how to operate it. My second sabbatical was done last year and I went to Berkeley, the University of California at Berkeley, and I worked with the rocket people, and studying the Aurora Borealis, and I went to Alaska and launched rockets with them. I also created a number of educational web sites, which involved the Aurora Borealis, as well as student science, NASA type programs, as well. I also spent a lot of my time with NASA in trying to get NASA education out. So I wrote some of the curriculum guides as well.

Chairman BOEHLERT. Did your school district pay you during your sabbatical—was it half-pay?

Ms. ZIELINSKI. Half-pay.

Chairman BOEHLERT. Well, you know, I would say the overwhelming majority can't even afford to take a half-pay sabbatical. Who could—

Ms. ZIELINSKI. Exactly. That was my first point. I think it would be wonderful, because most states do not offer sabbatical programs. And federal money to go to the states for sabbaticals and getting sabbaticals into the schools would be a wonderful opportunity for teachers.

Chairman BOEHLERT. And when you were with NASA, were you paid by NASA?

Ms. ZIELINSKI. Yes, I was.

Chairman BOEHLERT. All right. So you are. That is good. Thank you very much.

Ms. GIESLER. My name is Karen Giesler. I am known as the rebel at my school, so unlike my esteemed colleagues, I am going to say it is about the money. I think it was Mr. Nethercutt, or maybe yourself, said that people who are new to a profession out of college want to start a family or are in debt. I am looking at putting two kids through college here very shortly. And what has happened with wanting to encourage new people to come to teaching, to give pay incentives, when I started, I took time off to be home with my kids. Then I went back to teach and they gave me 4 years credit for 9 years' experience. And they said, well, we have a formula that compresses your experience. So I lost pay for my years' experience. As they are trying to encourage new teachers to come, it has gone to 7, and now it is 10 years experience. So with a master's, 3 certifications, and 19 years experience, I have got teachers new to the district making the same as I do.

Chairman BOEHLERT. That is goofy. I don't favor that. I mean, the assumption is if you are going to do something to attract young people in, the people already there should be well above that, obviously.

Ms. GIESLER. No.

Chairman BOEHLERT. But that is not—you are not going to have Washington doing that. That is the school district or the state education department.

Ms. GIESLER. Right, which brings me to the next point. As far as trying to entice new people, there are statistics out there that say approximately 30 percent of teachers new to teaching will leave the profession in 3 years. So I would like to see you concentrate on something to keep the good teachers that you have. And my kids have been exposed to teachers that went to school for, say, physics, and they were not teachers, and then they became teachers, and were teaching while they were getting their teaching, and you are not automatically a teacher. So I know that you want to find people that are really interested and excited about science, but they also need to be excited about teaching. So I would just caution you to look at that aspect. And part of what would help is to restore prestige, as you were saying, to the profession. And really, even within our profession, we just read a new book, the learning community. It talks about the parents are involved, the students, and it even missed the mark, and it is from within our own profession. And it said that, oh, plumbers have apprentice programs, and shouldn't we have an apprentice program. And I got to thinking about it, and which one of you would have to do parking duty in the little cubicle, raising the arm? Or what doctor has to clean his own waiting room, and we are expected to clean our hallways? And what lawyer has to take every client? Lawyers can turn clients away. We have to take every kid and they have to succeed. And you know, meanwhile, you are making the bulletin board, the whole gamut. So I think there are little things, but when you add them all up, it is easy to look upon teaching as not prestigious of a job because we are out there in our little coats doing recess duty, or cafeteria duty, and I really think that the prestige issue, if you can do anything about that, and think about keeping the good teachers. And keep in mind that math and science proficiency doesn't make a good teacher of math and science.

Chairman BOEHLERT. Just let me say that we—this Committee is fully supportive of the program that funds the Presidential Award, so we are demonstrating that we appreciate and want to recognize talent. Secondly, I don't know the last time a group of very able educators in America have been invited to testify before any Congressional committee, but I will tell you, we invited you here. And you saw the reception you got after your testimony—a standing ovation. I mean, I don't think that is—I have been here 19 years in Congress, and 15 years before that in the staff. I have never heard of that before, a Congressional committee, and all these guys, we all think we are kind of important. We are not nearly as important as you are. And we stood up and gave you a standing ovation, so we are on the same wave length. You are talking to friends here. We have got to convince some of these other people to pay more attention. Yes, ma'am.

Ms. GAY. Thank you, Mr. Chairman, for this opportunity to speak. My name is Cindy Gay and I come from rural Colorado. And I would like to speak about he issue of professional development. As I listen to these esteemed colleagues, I am honored and humble to be counted among them. And what I see is that each one of us had amazing opportunities for our own professional development and growth. Much of that has come from Eisenhower money or from NSF money. I think, perhaps, what may set us apart is the passion that we bring to taking that professional development and then implementing it in our classrooms. Lots of us attend professional development opportunities. Often, they are during the summer or during our free time. We come back loaded with lots of great ideas. And then we forget in the rush of the day to implement them. So my plea would be to consider as you build federal programs for staff development, is to consider ways to make those programs become part of the teacher's daily life, whether that be additional money for time for teachers to practice, to have collegial discussions to try out what they have learned from their professional development opportunities, to talk to other people. Those are the pieces that I think are often overlooked after the professional development opportunity is over.

That also goes with the idea of having the time during the classroom to practice those professional development opportunities, is the idea of mentorship. If there were people teaching in the classroom with you, what you could learn from a mentor. We have all been very fortunate to have mentors that we have been able to teach with. I remember taking the teaching duties of my mentor teacher when my mentor teacher went off to do professional development to others.

And your earlier question, should you be in the classroom or out of the classroom, perhaps there could be a combination of both so that the professional development becomes a piece of the daily job and not a separate piece to add in later.

Chairman BOEHLERT. Thank you very much.

Ms. GAY. Thank you.

Ms. HATHAWAY. Hi. My name is Viva Hathaway, and I am from the Great State of Virginia now. And I happen to be in one of the states that does have one of the more rigorous state mandated testing programs. And it is not just a fill in the blank, bubbly type test. You must demonstrate mastery in your courses in order to graduate. Beginning with my daughter's class, the class of 2004, they must demonstrate mastery in 9 units in order to receive an academic diploma; 8 or 6 units—I forget—for the lower general diploma, and so on. And that includes 2 in math, beginning with Algebra I, 2 in Science, 2 in Social Studies, and 2 in English, 1 of their choice. I am not here to say that you need to go over and above that. I mean, I might not get a ride home after I say this. We have too much government involvement, I think, in a lot of things, and we need to make sure that we keep government to a minimum size. But I do believe that if we are going to see improvement, we need—we have got teachers who are getting the job done. We have teachers who aren't getting the job done. We need to look to ourselves, we need to look to our circumstances, find out where those jobs are being done properly, what schools. I teach in an

inner city school, and we are getting the job done, and we have overcrowding, and we have lots of problems. We have 72 percent on free or reduced lunch. And our teachers are getting the job done. We have a security guard in our building. And they are getting the job done. So what we need to do is figure out ways to implement what is going right in places, some of the things that my colleagues are doing and things that will encourage other teachers elsewhere in the country with those proper techniques. I don't think you can be the lollipop in the sky for us. I don't think you can just wave your magic wand and give us billions of dollars, because I know Eisenhower grants have been abused in several states that I have been in while my husband was in the military. So I think what you need to look at and try to address is what standardized testing is working, if we are going to look at standardized testing (1) and encourage those types of things; what is not working, and discourage those types of things, federally. (2) I think as far as funding, we need to continue with funding programs, yes, like NSF and Eisenhower funds, things that are working, things that are providing some real quality initiatives.

But I also think we need to start to look outside of the box because we do have, whether we want to admit it or not, we have a real serious problem in our educational system in the public sector. And I think that—I heard a couple colleagues mention—it might have been Mr. Lampert, earlier. We need to look outside of the box, look to some of those programs that you might be able to help Verizon. I have a grant from Verizon, too. You might be able to help Verizon, give them some type of funding so that they can then, through their tax credits or whatever, kick back to the schools and reach us on a local level, and then we could help other teachers implement some of these things, too. So I think, really, you all need to start thinking outside of the box and looking at some other initiatives. I think Bush had some ideas. I have heard some great ideas this year coming up, and we need to start seriously looking at what can we do to get outside of that box. Continue the good programs like NSF, but let us get outside of the box and not look at government as an end all and do all to our circumstances.

Chairman BOEHLERT. Thank you very much. Just in terms of some of the things we do, we do use tax policy, I think, in a creative way in many instances, you know. The deductions that we give to corporate America—corporate America has a large responsibility, and I think in many cases are stepping up to the plate and doing a magnificent job of sponsoring programs like the Verizon program you talked about. But they are able to have some tax deductions because of that, and that is good. That is as it should be.

You know, there are some people who argue for a flat tax. Everybody should pay the same rate of tax—what do you have this crazy convoluted scheme for? Our tax code is more than just a system for collecting revenue to finance government. We make conscious decisions in Washington to give tax deductions for certain things. For example, we allow tax deductions for charitable contributions. That, I think, is wise public policy. Republicans and Democrats alike agree on it, because we want to encourage philanthropy. We know that the government can't do everything for everybody. And

if you make donations to nonprofit institutions to the Cancer Society, we allow tax deductions for that, so that makes sense. There are a lot of things we can do, but I mean, that is a good argument against the flat tax. I have never been enamored with the flat tax. I mean, why should some kid just getting out of high school taking a minimum wage job pay the same tax rate as I do? I mean, that doesn't make much sense to me.

So we have got to advance social policy in a responsible way that doesn't give away everything to everybody and has some common sense attached to it. Is there anyone else for the good of the order that has a—yes, sir.

Mr. LEFEVRE. Thank you, Mr. Chairman. I was down the hall listening. You can see the faces if you sit down there much better than you can here. My name is Walter LeFevre, and I am from the University of Arkansas. I teach civil engineering. I teach the produce these people turn out. They are doing a great job by and large, but we are not getting as many students as we used to that are properly trained. Tomorrow at 10:30, we will have a press conference where we are going to talk about the infrastructure of schools. Three years ago, we gave a grade of F. We have a report card that we release every 3 years. It is up to a D+ or D− this year, but I would urge you to consider these people need good facilities. There is a school in Kansas City where one class is being taught now, what used to be the boys' restroom.

Chairman BOEHLERT. Yes. There are examples of that all over the country. Traditionally, the role of the Federal Government has not been to provide bricks and mortar for elementary and secondary education. We are beginning to look at that and re-examine that policy, and maybe we do have some responsibility to put some money into that.

Mr. LEFEVRE. The district I am from, sir, we don't need—we have a large enough tax base. But there are a lot of rural schools and a lot of urban schools where the tax base isn't there. I thank you.

Chairman BOEHLERT. I understand that. Thank you very much. Well, I thank all of you, first of all, our Panel, for being such outstanding resources. All of you for being faithful to your charge and being interested enough to last this through. This is very important for us and this official record of today's proceedings will be read far beyond just the members who were here today, and we had pretty darn good attendance today. Keep in mind, members of Congress have about 13 things going at once, just like school teachers. And so we can identify with you, because we are in the same boat. With that, Mr. Hall, if you have anything for the good of the order?

Mr. HALL. Well, we always talk about role models, and of course, we are looking into the faces of role models. I was a lousy student. I am the greatest example in my district that anybody can make it to Congress if I did. My mother was a teacher, my sister, and all those, and they were always embarrassed at the grades I made. They even told on me one time there that I made four F's and a D, and my daddy whipped me for spending too much time on one subject.

But let me say, seriously, to you, that you are the people. And when you get my age, or middle age, or anything, and you go to

thinking back as to who really helped you, who really was the person that gave you a push, it should be your father or your mother, but 99 times out of 100, it was a teacher. It was for me, that made me believe I could achieve. And I always think that, probably, it is groups just exactly like yours that that poet had in mind when they wrote that line, I thank you, and I love you, reaching your hand into my heaped up heart and finding something there that no one else looked quite far enough to find. That is the role you have played, and I think you are a great asset and one of the treasures of this country.

And Mr. Chairman, you have done a great job in assembling them here. You have created a great record here today, and I think it will be widely read. Thank you. I yield back my time.

Chairman BOEHLERT. This meeting is now adjourned.[Whereupon, at 5:00 p.m., the Committee was adjourned.]

APPENDIX

PREPARED STATEMENT OF CONGRESSMAN KEN CALVERT

STATEMENT & QUESTIONS

K–12th Grade Math and Science Education: The View from the Blackboard

I am concerned over the findings of recent reports assessing the status and trends of the science and technology infrastructure in California. The aim of these reports was to identify what needs to be done in order to continue California's long sustained technology success. The first report was by the California Council on Science and Technology, titled *California Report on the Environment for Science and Technology* (CREST, located at www.ccst.ucr.edu), and the second, often referred to as the John Glenn Study, titled *Before It's Too Late: A Report to The National Commission on Mathematics and Science Teaching for the 21st Century.* Both studies are cause for alarm. The CREST summarizes by saying, "primary and secondary schools in California are not adequately preparing students for the high-tech workplace. . .[and] While these failings have not yet seriously impeded development in the high-tech industry in California, if not corrected they will prevent those in California from fully capitalizing on future development."

Q: Are you familiar with these reports? And what *can* be done to assure that those in California fully capitalize on future developments in the high-tech industry?

As a response to the aforementioned reports, I was proud to help create the Science and Technology Education Partnership (STEP) to help my community's students meet the growing needs of the new economy. By increasing interest in math, science and technology education, STEP hopes to inspire America's future scientists, engineers and technology industry professionals. Last November, this important conference brought together educators, organizations, associations and government agencies that focus on various fields of science and technology. A science and technology expo ran simultaneous to the day-long forum, and showcased local and national organizations and public and private entities. Also, STEP was very excited to have Jaime Escalante, who was portrayed in the movie *Stand and Deliver,* as the keynote speaker for the conference and recipient of the inaugural STEP Award, given for excellence in Math, Science and Technology Education.

Q: Can you elaborate on the benefits of education partnerships, like STEP? And, how can non-profit organizations, like STEP, be more effective in working with corporations, schools and community groups?

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PREPARED OPENING STATEMENT OF REPRESENTATIVE CONSTANCE MORELLA

Thank you, Mr. Chairman, for arranging this important hearing highlighting Presidential Awardees for Excellence in Math and Science teaching. And thank you, Awardees, for agreeing to share your valuable experience and expertise. I am proud to say that this Committee shares your dedication to improving math and science education in our country and we are very interested in learning from you—what has proven to work not only for our students, but also for our teachers, who are the real keys to successful education. This is particularly significant to salute a constituent Awardee, Ms. Felicity Messner Ross.

This issue is so important to us, not only on an educational level, but for tomorrow's science, engineering, and technology workforce. As we all know, our nation has reached far from home to fill our workforce needs because it was necessary—but this band-aid approach will not serve us well long-term.

Last year, I served on the National Commission for Mathematics and Science Teaching for the 21st Century—commonly known as the Glenn Commission. This group of business leaders, legislators, and educators devised a plan for recruiting and retaining our math and science teachers. These goals are addressed.

1. Establishing an ongoing system of professional development through several routes such as summer institutes, inquiry groups, leadership training, internet education—the Commission agreed that teachers should be ensured the time to develop their skills and recognized, such as you have been, when you exemplify high performance.
2. The Commission found an immediate need for increasing the number of math and science teachers while also improving the quality of their preparation.

   As you all know, the National Science Teachers Association reports that between 50 and 60% of middle and high schools are having difficulty filling their science teaching needs. And an area that receives growing attention—95% of urban schools report an immediate need in filling math and science teaching positions.
3. We also agreed that the working environment for teachers must be improved—specifically—made more attractive for K–12 math and science teachers.

In addition to learning your opinions on how we can recruit and retain a high-quality teaching workforce to adequately meet our students' math and science education needs, I would be very interested in your thoughts regarding a related issue: The small amount of women and minority students thriving in their math and science classes.

At some point today, I am very interested in hearing any of your thoughts on how we can reach out to these students—specifically on the federal level. Maybe you feel there is something we can do to encourage *all* children to pursue math and science interests—and maintain their interest without losing them somewhere in the education pipeline.

PREPARED OPENING STATEMENT OF CONGRESSWOMAN ZOE LOFGREN

Chairman Boehlert and Ranking Member Hall, I compliment you both for holding this timely hearing. I believe all my colleagues on the Science Committee join me in welcoming the math and science teachers on the panel and in this committee room.

There are two reasons why I think this hearing is important. First, when one learns he or she grows. Without effective teachers, students cannot learn how to learn and they will be denied personal, intellectual and vocational growth.

Second, many of you know that I represent the City of San Jose and Santa Clara County, an area that has the nation's greatest concentration of high technology firms. I have spent much time ensuring that these firms get the professionals they need through visas for scientific talent from abroad. We also know that America has an obligation to "home grow" our own "Albert Einsteins." Again, effective teachers are the key to achieving this objective.

If we are to continue being the world's leader in Information Technology, our country needs to focus on the core disciplines: mathematics and science that have fueled the development of the Internet and have secured the personal computer as an invaluable tool for millions of Americans.

We cannot achieve this goal without the best and brightest teachers who know their subjects, know how to teach and most importantly know how to inspire our children.

It is not very often that this Committee hears from a panel composed entirely of teachers. I welcome your participation and look forward to hearing from you on how the federal government can help you to enhance math and science education.

U.S. Department of Education
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